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DR. J. F. MONK

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PREFACE

It has been possible to maintain Vol. 96 at 144 pages and the waiting time for publication of submitted papers usually at six months or less. Costs have continued to rise, but every effort will be made to avoid reducing the size of Vol. 97.

The Editor is glad to be able to thank his predecessor, Sir Hugh Elliott, for making his introduction to the editorial chair so painless and for providing such detailed advice on the running of the *Bulletin* for its continued ease of production. Mr. and Mrs. C. W. Benson and Mrs. M. Hawksley are to be generously thanked for their time-consuming work in preparing the lists, index and corrigenda, and Mr. C. W. Benson for the considerable work entailed in supplying relevant matter from the International Trust for Zoological Nomenclature, who kindly allow us to reprint it from the *Bulletin of Zoological Nomenclature* for the benefit of our readers.

Mr. K. E. Wiltsher and his staff have withstood the editorial change and hand-writing without sign or sound of impatience and have as ever published the *Bulletin* punctually each quarter, for which I am most grateful.

JAMES F. MONK

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Corrigenda

p. 76, line 47: ‘*chrysostoma*’, not ‘*chrysostomus*’
p. 78, line 26: ‘*striatus*’, not ‘*triatus*’
p. 79, line 1: ‘*francicus*’, not ‘*francicaus*’
p. 84, line 2 (caption): ‘*Diomedea*’, not ‘*Diomedia*’
p. 84, line 6 (caption): ‘*aethereus*’, not ‘*aethureus*’
p. 85, line 2 (caption): ‘*Dissoura*’, not ‘*Dissouria*’
p. 94, line 25: ‘*Psalidoprocne*’, not ‘*Psalidoprogne*’
p. 94, lines 29, 31, 33, 35: ‘*Andropadus*’, not ‘*Andropadis*’
p. 94, line 35: ‘*masukuensis*’, not ’*mazukuensis*’
p. 94, line 40: ‘*calurus*’, not ’*caluras*‘
p. 94, line 46: ‘*fischeri*’, not ‘*fisheri*’
p. 94, line 55: ‘*Malaconotus*’, not ‘*Malconotus*’
p. 95, line 4: ‘*cyanocampter*’, not ‘*cyanocompter*’
p. 95, line 7: ‘*aequatorialis*’, not ‘*aequitorialis*’
p. 95, line 36: ‘*edolioides*’, not ‘*edoloides*’
p. 95, line 55: ‘*olivacea*’, not ‘*olivacia*’
p. 115, line 10: ‘*nigriloris*’, not ‘*nigricolis*’
p. 118, line 1: ‘*discolor*’, not ‘*discolour*’
p. 119, line 9: ‘*nigriloris*’, not ‘*nigricolis*’
p. 119, line 29: ‘*mufumbiri*’, not ‘*mufumberi*’
p. 129, line 39: ‘*Carduelis*’, not ‘*Cardeulis*’
p. 134, line 37: ‘*fischeri*’, not ’*fischceri*’

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Bulletin of the

British Ornithologists' Club

Edited by
Dr. J. F. MONK

Volume 96 No. 1 March 1976

The Annual General Meeting of the Club will be held in the Senior Common Room, South Side, Imperial College, Prince's Gardens, London S.W.7 at 5.45 p.m. on Tuesday 4 May 1976.

AGENDA

1. Minutes of the last Annual General Meeting.
2. Report of the Committee and Accounts for 1975.
3. The *Bulletin*.
4. Election of Officers:—
    (a) The Committee proposes that Mr. M. St. J. Sugg, M.A., be re-elected Honorary Treasurer.
    (b) The Committee proposes that Mr. R. E. F. Peal be re-elected Honorary Secretary.
    (c) The Committee proposes Dr. G. Beven, M.D., to serve on the Committee *vice* Mr. J. H. R. Boswall, who retires by rotation.
5. Any other business of which notice shall have been given in accordance with Rule (7).

By Order of the Committee,
RONALD E. F. PEAL,
Honorary Secretary.

Forthcoming Meetings:

Tuesday, 4 May 1976 at 6.15 p.m. for 6.45 p.m. dinner (seven hundredth meeting of the Club). In the Senior Common Room, South Side, Imperial College, South Kensington (entrance Prince's Gardens, S.W.7, off Exhibition Road and N. of Victoria and Albert Museum); a short symposium on African birds, speakers Mrs. B. P. Hall, Sir Hugh Elliott, Bt., O.B.E., and Mr. C. W. Benson, O.B.E. Cheques for the cost of dinner (£2·95 a head) must be sent to the Hon. Secretary before the meeting. *Please note this meeting starts earlier than usual.*

Tuesday, 20 July, 1976 at 6.30 p.m. for 7 p.m. at the Goat Tavern, 3 Stafford Street, London W.1. Mr. Robert Gillmor will speak on Bird Illustration.

Tuesday, 21 September, 1976. Speaker to be arranged.

Tuesday, 16 November, 1976. Dr. H. N. Southern will speak on the Tawny Owl.

Committee:

J. H. Elgood (*Chairman*)	P. Hogg (*Vice-Chairman*)
R. E. F. Peal (*Hon. Secretary*)	M. St. J. Sugg (*Hon. Treasurer*)
Dr. J. F. Monk (*Editor*)	J. H. R. Boswall
Mrs. J. D. Bradley	Dr. C. J. O. Harrison
C. E. Wheeler	

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Bulletin of the BRITISH ORNITHOLOGISTS' CLUB

Vol. 96 No. 1 Published: 20 March, 1976

REPORT OF THE COMMITTEE FOR 1975

The past year has been marked by escalating costs due to raging inflation. Postage rates for the *Bulletin* rose 83% and there was a very heavy increase in the price of dinners, whilst the charge for printing the *Bulletin* rose by 12½% at the beginning of 1975.

There were 20 new members in the year but there were eight resignations and nine members were struck off under Rule (4). The Committee much regrets to report the deaths of three members: F. A. Bak, Lord Hurcomb, G.C.B., K.B.E., and Captain C. R. S. Pitman, C.B.E., D.S.O., M.C. (Vice-Chairman 1956–59, Chairman 1959–62). There were eight new non-member subscribers to the *Bulletin*. At the end of the year there were 252 members and 126 non-member subscribers who were up to date with their subscriptions; these together show a slight increase on the corresponding figures at the beginning of the year and are highly satisfactory bearing in mind the increase in subscription rates, which came into force for 1975.

The attendances at meetings totalled 168, a reduction on the three previous years, almost certainly attributable to rising prices. Meetings were held at the Café Royal in January, March and May, but in the middle of the year we were informed of an increase approaching 50% in the cost of dinners. We were fortunate in being able to hold our July, September and November meetings in the Senior Common Room at Imperial College, South Kensington, where the catering and facilities proved excellent; in July there was a buffet supper and at the other meetings dinner of equally good character. The first two meetings in 1976 have been arranged to take place at the Goat Tavern in Stafford Street, Mayfair, where less expensive fare is available, but where numbers are limited to 40 by space. We would welcome, at the Annual General Meeting, or by letter, the comment of members upon venues for meetings, bearing prices of meals and private rooms in mind.

The size of the *Bulletin* was maintained under the eminent editorship of Sir Hugh Elliott, whose term of office concluded at the end of the year. News was received of an increase of about 50% in charges for printing the *Bulletin* and 7% in postage rates from January 1976. In view of this it was decided slightly to reduce the size of the *Bulletin* in 1976; however smaller type will be used if the supply of papers justifies publication of a greater amount of material than could otherwise be included.

The audited accounts for 1975, which are not yet available, will be tabled at the Annual General Meeting and published in a later number of the *Bulletin*.

* * *

The six hundred and ninety-eighth meeting of the Club was held at the Goat Tavern, 3 Stafford Street, London, W.1, at 7 p.m. on Tuesday, 20 January, 1976.

Chairman: Mr. P. Hogg: present 17 members and 13 guests.

Dr. Kear has kindly sent the following précis of her talk.

Zoos are here to stay—their popularity can be gauged from the fact that 150 million people visit annually the 500 zoos and aquaria listed in the International Zoo Yearbook. They provide mainly leisure and education, but zoos ought also to have important roles in biological research and in conservation.

It is fashionable to say, of zoos' conservation role, that they can act as reservoirs of species threatened with extinction in the wild. In the event of extinction, the suggestion goes, captive-bred animals can be reintroduced into the natural habitat. Examples where reintroductions have been successful (defined as third generation individuals being produced and the "new" population being self-sustaining in the wild) are, of course, extremely few—it's a novel concept, and there hasn't been much time.

Zoos are only just beginning to realise and combat the problems of breeding, for generation after generation, a species of which only a few captive individuals remain. Problems include the adaptation to abnormal diets and breeding seasons, loss of fear of predators including man, a lowering of natural levels of aggression, the bringing together of many deleterious recessive genes, and the lack of immunity to a variety of diseases.

Perhaps a surer conservation role for zoos involves their undoubted research and education facilities. They can often obtain, with ease, facts that are indispensible to the field worker; for example, gestation or incubation periods, oestrus cycles, indicators of maturity, and bones of known age. They can also interpret the field workers' findings to the public, who will then be able to see, and appreciate, the animals whose conservation they increasingly are asked to support. Thus zoos may, by acting as "honey pots" and drawing large numbers of humans away from the fragile wilderness, help to preserve the security of the habitats on which every species ultimately depends.

Good zoos whose ultimate goal is to exhibit, in natural surroundings, individuals that are, almost without exception, captive-bred, and exploit animals only to the extent that they can provide pleasurable interest, education and scientifically useful knowledge, need support. The large scale capture of wild creatures for exhibition at a profit, is an activity that many will regard with distaste.

Comments on the nesting and plumage of the Orange Dove *Ptilinopus victor*

by Ronald I. Orenstein and Murray D. Bruce

Received 10 November 1975

On 17 June 1974, the authors discovered a nest of the Orange Dove *Ptilinopus victor* at approximately 490 m elevation in forest on the Waitavala estate near Waiyevo, Taveuni, Fiji. The nest was 2·5 m up in a small (subcanopy) tree, about 1·5 m from the trunk on a horizontal branch. Its structure was extremely flimsy: a platform of twigs approximately 10 cm across and 1·5 cm thick, with some sticks protruding several centimetres further out. The network was so loose that a finger could have been inserted through the bottom of the nest in several places. When discovered, the female bird was sitting; indeed, her departure drew our attention to the nest. There was a single rather large nestling, showing only the beginnings of fledging—the wing quills just starting, the dorsal feather tracts outlined with sheathed feathers on the back and to a lesser degree on the head.

In the only previously published account of nesting in this species, Layard (1876) reported breeding from November to December, and described the clutch size as two. However, it is not clear from his account whether or not Layard himself ever actually found a nest. Goodwin (1970: 377) pointed out that this clutch size of two reported by Layard differs from the single-egg clutch of other *Ptilinopus* species for which information is available, but agrees with that of the Cloven-feathered Dove *Drepanoptila holosericea* of New Caledonia. Our finding of a single nestling, however, suggests that the Orange Dove may have the typical clutch size of the genus. It seems unlikely that any nest predator would have removed one chick and left the other, although Goodwin (*in litt.*) points out that he has on rare occasions found nests of the Wood Pigeon *Columba palumbus* with but a single chick though the clutch size of this species is almost invariably two. There is no nesting information for the Golden Dove *P. luteovirens* and the Velvet Dove *P. layardi* (Goodwin 1970: 378–9), the other two members of the superspecies *P. luteovirens* (once considered to constitute the genus *Chrysoenas* Hartlaub (1854) (not *Chrysoena*)[1]). Confirmation of our recorded single-egg clutch is desirable.

The male Orange Dove is the most vividly coloured of its family, its brilliance being matched by few other birds. Further, its pattern is most unusual for the genus *Ptilinopus*. Nearly all fruit doves are brightly coloured but most of them are largely green, other colours being confined to the head or underparts or both. This pattern allows the birds to be most inconspicuous, particularly to an overhead avian predator (Orenstein 1973). The absence of such a pattern in the Orange Dove would not be so puzzling if hawks were absent on Fiji. However, the Fiji Goshawk *Accipiter rufitorques*, Swamp Harrier *Circus approximans* and Peregrine *Falco peregrinus* occur on Taveuni. The Goshawk was particularly common in the Waiyevo area (Orenstein & Bruce, MS). It would thus seem that the brilliant orange body of the male dove would render it an obvious target for these predators, especially since it is largely a bird of the canopy. However, we noted that in the field the dull green head blends into the foliage, while the rounded orange object reremaining (the body) resembled one of the large dead leaves scattered through the forest canopy. When viewed from below at least, it was easy to pass the dove by as just such a leaf, a fact also noted by Layard. Whether this would be the case from above, where the leaves are viewed by reflected rather than transmitted light and may not appear as orange, is difficult to say. However, our observation does suggest that a pattern such as that of the Orange Dove may not be incompatible with a need for camouflage, though the striking sexual dimorphism of this species, with the female plumage replacing the orange with green—unusual in the genus *Ptilinopus*—suggests that the orange of the male may still render it more liable to predation than would a less striking body colour. It would be valuable to learn the details of the courtship and mating system in this species.

[1] The use of the name *Chrysoena* Bonaparte (1854: 871, 879), not "*Chrysaena*" Bonaparte (1855: 28—not 1857, cf. Zimmer 1926: 69), follows Peters (1938). However, Bonaparte's name of 1854 (6 November) is predated by *Chrysoenas* Hartlaub (1854: 166; "before August", cf. Mathews 1927: 42). Both names originated from Bonaparte's usage, and he intended *Chrysoena* to replace *Chrysoenas* (used by him in correspondence, although Hartlaub's adoption of this name precedes the formal proposal of *Chrysoena* by Bonaparte). Mathews chose to use *Chrysoenas*, and if the Fijian doves are recognised as a distinct subgenus, this name should be adopted.

The explanation proposed above may also apply to patterns in other *Ptilinopus* species, such as the Golden Dove of Viti Levu which also has the body colour brighter than that of the head. The Velvet Dove of Kadavu has a yellow head contrasting with a green body, while several other species (*e.g.* the Black-naped Fruit Dove *P. melanospila*) also have a colourful head contrasting with a largely green body. In all these birds the total effect may well be disruptive, with either the body or the head resembling a leaf, flower or fruit separate from the rest of the bird, which is coloured to blend into the background. Whether the body or the head appears more conspicuous seems unimportant from a taxonomic point of view; both variations occur within the "*Chrysoenas*" group.

A further conclusion from this discussion is that the presumably adaptive nature of these patterns renders them highly likely to have evolved more than once, and hence of little use in determining relationships. Thus, Mayr (1940) apparently considered the Silver-shouldered Fruit Dove *P. tannensis* of the New Hebrides to be the nearest relative of "*Chrysoenas*", presumably because of its resemblance in plumage pattern to *P. layardi*. Observations by the junior author on the New Hebrides and New Caledonia, however, indicate that *P. tannensis* resembles *P. luteovirens* and *P. victor*, the two species of this group which we have observed, less than does the quite differently patterned Cloven-feathered Dove *Drepanoptila holosericea* (Bruce, MS). The "crest" of the latter species resembles closely the high, domed foreheads of the Fijian birds. The chunky, rounded body shape of these birds is quite different from the more slender appearance of *P. tannensis*. The Fijian doves, indeed, may be quite close to *Drepanoptila* (whether or not they have a similar clutch size), and, with it, may represent relict survivors of an early wave of colonisation by *Ptilinopus* stock into the Pacific area (cf. Amadon 1943).

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Notes on a nesting female Variable Sunbird *Nectarinia venusta*

by R. A. Cheke

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As examples of ecological equivalence, sunbirds (Nectariniidae) are often compared with hummingbirds (Trochilidae). In both groups the amount of time spent foraging for food varies between 10% and 35% of daylight, although small changes in the volume of nectar available per flower can produce major changes in birds' partitioning of time (Wolf *et al.* 1975). Compared with hummingbirds under equivalent conditions, sunbirds have greater energy requirements but lower foraging costs, partly due to the hovering habit of hummingbirds in front of their food plants, in contrast to sunbirds which, with some exceptions (Williams 1951, Coe 1961, Broekhuysen 1963, Cheke 1971a), perch while feeding. The similarity in time budgets of the two groups appears to be the result of a balance between these two factors. The complexity of sunbird energetics has been emphasised by the observation that one of two male Malachite Sunbirds *Nectarinia famosa* studied by Wolf (1975) regularly took in less energy, in terms of the calorific value of the nectar it consumed, than it expended. This result implies that supplementary energy provided by the bird's invertebrate diet or possible savings of energy by regulated nocturnal hypothermia, which occurs in Malachite Sunbirds at high altitudes (Cheke 1971b), are of considerable importance. Since there are few accounts of the activities of nesting sunbirds the following data obtained in July 1974 on the behaviour of a female Variable Sunbird *N. venusta*, nesting at sea-level in an equitable environment, may be of interest for comparative purposes in nectarivorous species.

The data may be somewhat atypical owing to the protected nature of the nest-site, which was studied during a brief, but crucial, part of the nesting cycle, inside a bungalow at sea level at Tiwi beach, 20 km S.W. of Mombasa, Kenya. The house had been empty for some weeks permitting the bird, which entered through gaps between the corrugated iron roof and the top of a wall, to construct its nest undisturbed. The nest incorporated some string hanging from a thick wire, intended for holding up mosquito nets, which was suspended from a roof beam. The main body of the nest was 17·5 cm from top to base, with pieces of grass and leaves straggling 17 cm below it. Its base was 183 cm from the floor and its top was 45 cm below the beam. The oval entrance hole to the nest chamber was 4 cm in height, 2·7 cm wide and its base was 3·8 cm above the base of the nest. The rear of the chamber itself was 4·7 cm inside the nest, which was 6·5 cm wide at its broadest. This type of nest structure, pear-shaped and typical of sunbirds, clearly provides more protection for the young than the open nests characteristic of hummingbirds. The entrance hole faced into the room, away from the window which was covered with a wire grill of 5 cm square mesh. When this window was open the bird returned to the nest through it, pausing on the wire mesh on its way, but it always departed in the opposite direction via one of its exit holes underneath the roof.

The nest was first seen on arrival at the house on the evening of 24 July 1974, after dusk. The sitting bird was disturbed as little as possible and, despite occasional electric lighting and human occupation of the room, she remained in the nest until the next morning when it was found that she was incubating two eggs. These measured approximately 1·6 × 1·0 cm and were heavily mottled with dark brown on a paler brown background, the mottling being most dense at the wider ends of the eggs.

When returning to incubate after a foraging session, the bird hovered briefly in front of the nest, perching on it below the entrance hole before entering and turning around to settle on the eggs. Two eggs remained throughout 25 and 26 July but at 10.05 hrs. on 27 July the bird was moving excitedly within the nest before flying away and returning five minutes later. During this interval the nest was examined revealing that one egg had hatched. At 10.10 hrs. when the bird returned she perched as usual below the entrance hole but instead of then entering the nest at once she remained probing into the hole with her bill for 2 minutes 25 seconds. This behaviour was noted twice more, when only one young had hatched, for periods of 1 minute 35 seconds and for 2 minutes 40 seconds. Later that morning some high-pitched squeaking, presumably from the chick, was heard and the adult stood up inside the nest and, probing beneath her, also piped but at a higher frequency. The second egg had still failed to hatch by 18.05 hrs. on 27 July. When at 07.25 hrs. on the following day the adult returned to the nest, she paused briefly at the entrance hole before entering, making piping noises (described in notes as "tseep, did-dee-did, oh, oh"). After entering and turning around she then uttered, with her head protruding from the entrance hole, a sub-song described as "did, dee, did, da, deee, dee, dee didyou". This was followed by chirps, interspersed with high-pitched piping from the young which continued for 25 minutes. After this active and noisy brooding session the adult departed at 08.00 hrs. and the nest was then found to contain two young. Later that day the adult attended to the young continuously from outside the nest for 3 minutes 10 seconds, the longest such session recorded. At 09.30 hrs. egg shells were found beneath the nest.

After a hypothermic night, and at high altitudes, hummingbirds have been recorded to leave their nests as much as 20 minutes before sunrise on clear days (Calder & Booser 1973) and Broekhuysen (1963) records that the Orange-breasted Sunbird *Nectarinia violacea* departs from its nest from 6 to 32 minutes before sunrise. Although dawn was at 06.00 hrs., the Variable Sunbird did not leave the nest before 06.55, 06.45 and 06.43 hrs. on 26, 27 and 29 July respectively. Similarly, with dusk at 19.00 hrs., the bird remained in the nest after 17.50, 18.21 and 18.35 hrs. on 25, 27 and 28 July.

The times for sessions of incubation or brooding and for absences from the nest by the female *N. venusta* are given in Table 1. Table 2 contains details of five continuous observation periods, of brooding sessions, only two of which were of any length.

TABLE 1

Incubation and brooding sessions and intervals of absence from the nest of a female Variable Sunbird *Nectarinia venusta* according to nest contents.

Nest contents	*Incubation or brooding sessions (minutes)*		*Intervals of absence from the nest (minutes)*	
	Mean	*Range*	*Mean*	*Range*
Two eggs	—	5–70	29·5	10–50
One egg and one chick	11·8	5–35	8·5	4–16
Two chicks	12·7	1–39	9·9	3–17

TABLE 2

Brooding sessions of female Variable Sunbird *Nectarinia venusta* during periods of continuous observation with known nest contents.

Nest contents	*Date*	*Observation time*	*No. of brooding sessions*	*Brooding sessions per hour*	*Mean brooding time per session (mins.)*	*% time brooding*	*Time brooding per hour (mins.)*
One egg and one chick	27 July	1000—1320	8	2·4	18·5	74	44·4
Two chicks	28 July	0800—1125	9	2·6	12·1	53	32·0
Two chicks	28 July	1505—1540	2	3·4	12·5	71	43·1
Two chicks	28 July	1715—1835	2	1·5	26·0	65	39·1
Two chicks	29 July	0643—0748	3	3·4	5·6	31	19·5

The Variable Sunbird, like the Orange-breasted Sunbird (Broekhuysen 1963), in general tends to be absent for longer periods and to remain on the nest for longer sessions than hummingbirds (Orr 1939, Calder 1971, Wolf & Wolf 1971, Snow 1974, Smith *et al.* 1974). Since female Variable Sunbirds weigh 5·3 ± 0·3 g (Fry 1970) and the conditions for breeding were good, this is not surprising in comparison with hummingbirds such as Anna's Hummingbird *Calypte anna* (body-weight 3·4—5·8 g) and the Calliope Hummingbird *Selasphorus calliope* (body-weight 2·6 — 3·4 g) studied at high altitudes (see Calder 1971, Smith *et al.* 1974); but it is also true of the larger Purple-throated Carib Hummingbird *Eulampis jugularis* (body-weight 7·9 ± 0·4 g—Hainsworth & Wolf 1970) studied by Wolf & Wolf (1971).

No male Variable Sunbird was seen either near the nest or with the female. However, little significance can be attached to this since there is often a time-lag between the hatching of the young and any male partner, if present, learning of this fact. Skinner (1969) records that both sexes of the Pygmy Long-tailed Sunbird *Anthreptes platura* feed their nestlings, but it is the female which broods them at night, entering the nest at sunset (18.15 hrs.) and leaving after 07.30 hrs., in northern Nigeria. The variability of the incubation behaviour of sunbirds under different environmental conditions is emphasised by the Beautiful Long-tailed Sunbird *N. pulchella* which sits on its eggs very little or not at all during daytime in the intense heat of the West African sahel (Koenig 1956).

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Morphological notes on *Acridotheres tristis* in Natal

by R. K. Brooke

Received 3 November 1975

The Indian Myna *Acridotheres tristis* was introduced into Durban, Natal, South Africa, about 1900 (Kent 1927) and it was then believed that the introduction was due to a consignment of these birds shipped to an animal dealer in Durban escaping and establishing themselves prior to spreading naturally over much of Natal (Calder 1953). It is known that the House Sparrow *Passer domesticus* can produce the characters of new subspecies in well under a hundred years on introduction to new countries (Johnston & Selander 1964 on North America, Harwin & Irwin 1966 on southern Africa). The Asiatic Spotted Dove *Streptopelia chinensis* introduced about a hundred years ago into southern Australia now has substantially longer tarsi than any Asiatic population (Frith & McKean 1975) though the actual figures are uncertain since those given in their Table 6 appear to have been multiplied by 10. That this does not happen to all birds was shown by Niethammer (1971) in respect of some west Palaearctic species introduced about a hundred years ago into New Zealand.

Having now assembled a substantial panel of Natal-taken specimens at the Durban Museum it was decided to investigate whether Natal *A. tristis* had differentiated from those of Asia. For this purpose adult Asiatic birds were borrowed from the National Museum of Natural History, Washington, and the Field Museum of Natural History, Chicago.

Two forms of *A. tristis* have long been recognized (see Sharpe 1890, Hartert 1932, Vaurie 1959, Amadon 1962, Ali & Ripley 1972), namely *A. t. tristis* (Linnaeus) 1766, *Syst. Nat.*, ed. 12, 1: 167 (Pondicherry, Tamil Nadu, India) throughout continental Asia and *A. t. melanosternus* Legge, 1879, *Ann. Mag. Nat. Hist.*, ser. 5, 3: 168 (Sri Lanka) in Sri Lanka. All populations introduced elsewhere, mostly in the southern hemisphere, are attributed to the nominate race (Benson 1960, Amadon 1962). The accepted arrangement of natural Asiatic populations must be considered before it is possible to assess local differentiation in Natal *tristis*. Of the discreteness of *melanosternus* there is no doubt. But the material examined of nominate *tristis* shows it to be composite. Birds from peninsular India are paler and duller below and less reddish on the back than birds from Burma and Nepal. This may be expressed more accurately in the capitalized colour nomenclature of Ridgway (1912) as upper abdomen Avellaneous in India, Verona Brown in Burma; throat and breast Deep Mouse Gray in India, Dark Mouse Gray in Burma; back pale Prout's Brown in India, dark Snuff Brown in Burma. Plate X(4) in Smythies (1953) gives a good idea of the dark, rich colouring of Burmese birds. The four birds seen from China and Thailand are slightly darker than those of peninsular India but are closer to them in colour than they are to those of Burma and Nepal.

There are two names available for the birds of Burma and Nepal (Sharpe 1890, Hartert 1932): *Pastor peguanus* Lesson, 1831, *Traité Orn.* 1: 404, Pegu, southern Burma, and *Maina tristoides* Hodgson, 1836, *Journ. Asiat. Soc. Bengal* 5: 771, Nepal. Through the kindness of Dr. Ben King of the American Museum of Natural History I have received photocopies of both proposals. I agree with Sharpe (1890) that Lesson's name is indeterminate since it is not clearly a description of *A. tristis* or any other known bird. I therefore propose that *A. t. tristoides* (Hodgson), 1836, be recognized as the subspecific name of populations in central and northern Burma and Nepal, and also of those introduced populations overseas which are indistinguishable in colour and which may well have been derived from stocks trapped in Burma for the overseas bird trade.

TABLE 1
Mensural data (mm and g) on *Acridotheres tristis*

A
A. t. melanosternus (Sri Lanka)

	Ad. ♂♂	*Ad.* ♀♀	
	Range	*Range*	*Average*
Culmen	25, 28	26–28	(4) 26·8
Wing	140, 143	132–140	(4) 135·5
	143–149 (5)[1]	134–138 (3)[1]	
Tail	82, 85	74–82	(4) 78·5
	82–96 (5)[1]	76–82 (3)[1]	
Crest	17, 19	12–16	(4) 14·0

B
A. t. tristis (India and China)

	Ad. and immature ♂♂			*Ad. and immature* ♀♀		
	Range	*Average*	*S.D.*	*Range*	*Average*	*S.D.*
Culmen	24–28	(9) 26·1	1·1	24–27	(6) 26·0	1·1
Wing	134–147	(9) 139·9	4·0	133–143	(6) 139·2	3·4
	138–153[1]			138–147[1]		
	133–149[2]	(16) 144·6		131–143[2]	(21) 136·4	
Tail	77–91	(8) 82·8	5·0	78–88	(5) 82·6	4·3
	81–95[1]			79–86[1]		
Crest	13–21	(8) 17·1	3·2	13–16	(6) 14·5	1·1

Both sexes together

Wing	130–140 (16)	Delacour & Jabouille (1931)
	136–148	Hartert (1932)
Tail	83–90	Hartert (1932)
Weight	82–138 (20)[1]	

Localities India.

Awjar (Baroda, Gujerat), Bhachau (Kutch, Gujerat), Gorakhpur (U.P.), Hoshiarpur (Punjab), Jamwala (Junagadh, Gujerat), Kanchraparai (Bengal), Khuri (Sunguja), Lake Khurjar (Sind, Pakistan), Lucknow (U.P.), Nichlaul (U.P.), Mudumalai (Nilgiris, Tamil Nadu).

China.

Chienchuan (Yunnan) at 2440 m a.s.l., Ndamucho (Yunnan) at 4270 m a.s.l., Youngning Mts. (Yunnan) at c. 3810 m a.s.l. in Nov. or Dec. 1928.

Thailand.

Pak Chong.

C

A. t. tristoides (central and northern Burma and Nepal)

	Ad. and immature ♂♂			*Ad.* ♀♀
	Range	*Average*	*S.D.*	*Range*
Culmen	25·0–27·5	(5) 26·3	1·0	26,26
Wing	133–145	(5) 139·6	4·5	137,140
Tail	80–88	(5) 83·4	3·2	82
Crest	17–18	(5) 17·2	0·5	14, 14

Localities Mandalay, Sittwe (Arakan), Thankote (Nepal).

D

A. t. tristoides (St. Helena)

Ad. ♂	Culmen 29,	Wing 149,	Tail 89,	Crest 17
Ad. ♀	Culmen 26,	Wing 140,	Tail 91,	Crest 12

E

A. t. tristoides (Natal, South Africa)

	Range	*Average*	*S.D.*	*Range*	*Average*	*S.D.*
	Ad. ♂♂			*Ad.* ♀♀		
Culmen	25–31	(10) 27·6	1·8	24–29	(13) 26·7	1·2
Wing	135–143	(12) 139·9	2·8	131–141	(12) 135·1	3·3
Tail	78–90	(11) 83·8	3·6	75–88	(8) 80·0	4·5
Crest	14–18	(12) 15·9	1·2	13–18·5	(13) 14·9	1·8
Weight	106–134	(4) 121·3		98–116	(5) 108·6	7·3
	Imm. ♂♂			*Imm.* ♀♀		
Culmen	25–30	(10) 28·1	1·5	25·5–28	(12) 26·8	0·8
Wing	133–144	(10) 139·7	3·9	129–137	(11) 133·1	2·8
Tail	74–86	(7) 79·4	5·4	74–80	(8) 77·3	2·3
Crest	12–18	(10) 15·1	2·1	12–16·5	(12) 14·0	1·5
Weight	118–134	(4) 125·3		102–116	(3) 111·0	
	Ad. amd imm. ♂♂			*Ad. and imm.* ♀♀		
Culmen	25–31	(20) 27·9	1·6	24–29	(25) 26·8	1·0
Wing	133–144	(22) 139·8	3·3	129–141	(23) 134·1	3·2
Tail	74–90	(18) 82·1	4·7	74–88	(16) 78·6	3·7
Crest	12–18	(22) 15·5	1·7	12–18·5	(25) 14·4	1·7
Weight	106–134	(8) 123·3	9·5	98–116	(8) 109·5	7·0
	Juvenal ♂♂			*Juvenal* ♀♀		
Culmen	23–28	(9) 25·8	1·5	26–28	(3) 27·0	
Wing	124–135	(9) 130·8	3·9	121–133	(3) 128·3	
Tail	63–69	(6) 66·8	2·2	60–67	(3) 63·5	
	Juvenals of both sexes					
Culmen	23–28	(14) 26·1	1·4			
Wing	121–135	(14) 130·0	4·1			
Tail	60–69	(9) 66·2	3·0			

Eggs Natal

27·5–33·0 1·6
× (16) 29·4 × 21·3 S.D.
20·2–22·7 0·8

Soviet[2]
28·7–32·4
×
20·4–23·0 (16) 30·1–21·6

Indian[2]
27·6–35·0 (100) 30·8 × 21·9
×
19·2–23·2

Localities Camperdown, Durban, Inanda, Marianhill, Pietermaritzburg, Pinetown, Umhlanga Rocks.

NOTES [1] Ali & Ripley (1972)

[2] Dement'ev & Gladkov (1970)

Culmens have been measured from the skull.

The crest is the length of the feathers in the second last row of elongated, lanceolate feathers on the occiput.

The first point that emerges from study of the Natal birds is that nearly all of those in fresh plumage are the darker, more richly coloured *tristoides* and that very few resemble nominate *tristis*. I conclude that the trade consignment sent to Durban was composite but that the majority of the birds were *tristoides* and that this is the subspecific name that should be applied. I would add that of 21 Natal adults and immatures (not juvenals) in fresh plumage all eight from Pietermaritzburg in the less humid interior are *tristoides* and that it is only among the specimens from the humid coastal regions that three birds resembling nominate *tristis* have been found.

The three specimens seen from the island of St. Helena are clearly *tristoides*.

I am told by a friend who recently visited the Seychelles archipelago that the *A. tristis* there are clearly duller in appearance than those he is accustomed to seeing in Durban, i.e. the stock there is nominate *tristis*.

The linear measurements of *A. tristis* are unusually variable for a bird of its size (Table 1), the tail length in particular. The wing lengths (Table 1B) are longer in Soviet birds than in Indochinese birds: but only the examination of large series will clarify the extent of geographical and sexual variation in linear measurements. Naik & Naik (1969) deny that there is sexual dimorphism in wing and tail measurements after examining 112 specially collected birds from Gujerat, India, but they do not give figures to support their statement. However, Natal females (Table 1E) are highly significantly shorter winged than males: a "t" test on the means for adults and immatures taken together gives a value of 5·88, $P < \cdot 001$. A similar test on tail length gives 2·39 which is just significant, $P < \cdot 05$. The figures for the culmen are 2·82, $P < \cdot 01$; for the crest 2·21, $P < \cdot 05$; for weight 3·31, $P < \cdot 01$. Thus Natal females are generally lighter than males and smaller, particularly in wing length. Culmens have been measured from the skull. The crest is the length of the feathers in the second last row of elongated, lanceolate feathers on the occiput.

TABLE 2

Some differences between adults and juvenals of Natal *Acridotheres tristis tristoides* (see also measurements in Table 1E)

Adult	*Juvenal*
sides of lower mandible dark	pale and concolorous with the rest of the bill.
palate black	yellow
crown and occiput feathers lanceolate and Black.	not lanceolate and Chaetura Black slightly tipped with brown.
occipital feathers 11 mm or longer	less than 10 mm long
dorsal skin dark	pale
back dark Snuff Brown	Auburn
primaries dull Black	Fuscous Black
primary 10 does not reach the end of the White basal section of primary 9	reaches to at least the base of Fuscous Black distal section
outer greater upper primary coverts White	marked with dusky
secondaries 7 and 8 uniform Fuscous	tipped with Mikado Brown
alular 2 with White outer web	dusky with White patch
rump Snuff Brown	Cacao Brown
oil gland with sparse black down	no down
upper sides of rectrices Black	Chaetura Black
throat Dark Mouse Gray	Wood Brown
breast Dark Mouse Gray	Mouse Gray tipped with pale Cacao Brown
upper abdomen Verona Brown	Mikado Brown
under sides of retrices Black tipped with White, including the shafts	Chaetura Black and Pale Vinaceous Fawn with dark shafts to the end
claws horn coloured	yellow

The descriptions of the juvenal plumage in the standard works underestimate the distinctiveness of this plumage, at least in Natal birds. The points of difference are set out in Table 2, in which the capitalized colour names are those of Ridgway (1912). But more curious is that juvenals moult the tail about a fortnight after leaving the nest and thus most juvenal specimens have second generation tails which are moulted with the remainder of the juvenal plumage at the end of summer, in Natal between January and June. The first generation of tail feathers are Chaetura Black and narrow with slightly pointed tip. The pale ends of the rectrices are Pale Vinaceous Fawn and the pale section of the sixth or outermost measures c. 10·5 mm in width by 6 mm in depth. The second generation of tail feathers are Black and broader, though not longer, with a slightly pointed tip. The pale ends are White with a dark shaft and the outermost measures c. 13 mm in width by 14 mm in depth. The third and subsequent generations of tail feathers are Black and even broader, with scalloped ends to the inner webs. The pale ends are White, the outermost measuring c. 17 mm in width by 18 mm in depth. Within the white sections in third generation feathers part or all of the shaft may be black but it is always white in the fourth and subsequent generations.

The post juvenal moult leads to a plumage which is scarcely distinguishable from that of adults. In some birds the three or four outermost greater upper primary wing coverts are lightly marked with dusky instead of being plain white, and in some birds some or all of the shafts of the rectrices are at least partly black within the white terminal sections. Naik & Naik (1969) comment that nominate *tristis* in very fresh plumage have light grey tips to all dark feathers and that these soon abrade, leaving the plumage at the start of the breeding season brighter than it was when fresh. This is not true of Natal birds though here the Dark Mouse Gray breast feathers have Verona Brown tips when very fresh. In an immature female the palate was not black as in adults or yellow as in juvenals but dusky pink: more immature birds must be examined to see if this character is constant. The testes of one male collected in immature plumage in the breeding season were (left) 13 × 5, (right) 12 × 5 mm and thus of a size to be fully functional. It appears that in Natal *A. tristis* starts breeding when it is just under a year old.

There are three alular quills as stated by Naik & Naik (1969) and this is the commonest number in the Passeriformes. Quills 1 and 2 (no. 1 being the innermost as recommended by Van Tyne & Berger 1959) are pied but do not match the adjacent upper primary coverts. This lack of matching is the less common situation in birds. Quill 3 is totally black, perhaps to strengthen it as being the longest quill and the one most subject to abrasion through use. There is no subalular apterium but the feathering here is sparser in juvenals than in adults, a situation which is probably widespread in birds which do not have this apterium in adults and of some slight advantage in reducing the number of feathers that the nestling has to grow in a very short period. Likewise, in juvenal *A. tristis* the oil gland is nude but in adults it is sparsely covered with black down.

Naik & Naik (1969) have elucidated the moult patterns of nominate *tristis* in western India. Natal *tristoides* reflect the patterns they have detected, including the marked tendency to a jumbled mode in the rectrices, irrespective of generation. Egg laying continues into January in Natal (Dean 1971) and an adult female collected on 5 February had started to moult at least a fortnight earlier. As in India, there is no clear demarcation between the breeding and moulting seasons.

As in many starlings, plain white feathers may be found in tracts which are normally pigmented. I have seen three Asiatic specimens with white occipital feathers and a Natal specimen with a pure white outer left rectrix. One Chinese bird in fresh plumage had white tips to the first five primaries and the first seven secondaries.

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The status of *Aratinga astec melloni* Twomey

by Kenneth C. Parkes

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Since the description of *Aratinga astec melloni* by Twomey in 1950, only two authors, to my knowledge, have commented on this alleged Honduran subspecies of the Olive-throated Parakeet. Twomey described *melloni* as differing from *A. a. astec* in being "decidedly paler on the breast, abdomen and flanks, the green being duller and more suffused with a grayish undertone, the olivaceous cast to the breast and throat duller; the back is paler with an olivaceous cast on the crown, back and interscapular regions in contrast to the brighter green of *Aratinga astec astec*". Monroe (1968) examined a large series of this species from southern Mexico and Central America, and could find no significant variation in colour. Forshaw (1973) gave *melloni* a full numbered entry, but stated that it was "doubtfully distinct" and "probably not separable" from *astec*, citing Monroe.

Both these latter authors overlooked the fact that Twomey's comparative material of *astec* contained only specimens from Costa Rica, although the type locality of *Conurus astec* Souancé is "Mexico". Twomey had no Mexican specimens other than one of *A. a. vicinalis* (Bangs & Penard) from Tamaulipas. If Honduran specimens were indeed separable from those of Costa Rica as claimed by Twomey, one would expect them to resemble those of Mexico, and Twomey would thus have named the wrong population. On the other hand, Twomey considered seven specimens from British Honduras to be "intermediate between *Aratinga astec vicinalis* and *Aratinga astec melloni*". As *vicinalis* is presently considered to be a subspecies from Tamaulipas and northern Veracruz, intergradation in British Honduras between this form and the alleged Honduran form *melloni* would place in question the range and characters of nominate *astec*, from an unspecified locality in Mexico.

Although Marien & Koopman (1955) considered the two specimens of *vicinalis* they examined to be "exceedingly similar" to *astec*, the limited number of specimens I have examined indicate that it is quite recognizeable, an opinion which is shared by, among others, Monroe (1968) and Allan R. Phillips (pers. comm.). Forshaw (1973) accepts it without comment.

As is clearly indicated by a series of specimens from Veracruz in the U.S. National Museum of Natural History, intergradation between *vicinalis* and *astec* extends through much of that state. A specimen from Potrero, less than 150 km south of Altamira, Tamaulipas, the type locality of *vicinalis*, is intermediate between the two subspecies. Farther south, two of six from Tres Zapotes and one of two from Motzorongo clearly show some influence of *vicinalis*. Of the other four Tres Zapotes specimens, two are so badly worn and stained that colour evaluation is impossible, and two are within the range of variation of Middle American *astec*. This is also true of the second Motzorongo specimen and the two from farther south, at Paso Nuevo.

It would appear to be desirable to restrict the type locality of *Conurus astec* Souancé to some place in Mexico from which specimens are well removed from any influence of *vicinalis*, and from which early specimens may plausibly have been received. Accordingly, I designate the restricted type locality of *astec* as Mérida, Yucatán. An old Mérida specimen and two old specimens from Chichén Itzá (about 100 km east of Mérida) in the U.S. National Museum, and a recent specimen from Kopomá (about 50 km southwest of Mérida) in Carnegie Museum of Natural History, are all good matches for Central American specimens. This parakeet is abundant on the Yucatán Peninsula.

Returning now to the question of *melloni*, the Carnegie Museum series has been augmented by four additional specimens collected by Twomey at Coyoles, Honduras, subsequent to his description of *melloni*, and we have also acquired several specimens from various localities on the Yucatán Peninsula. Study of this series leads me to accord with Monroe's opinion, based on a larger sample, that the Honduran specimens have no distinctive characters of their own. Monroe stated that "There is much variation in the intensity of green coloration due to wear (or fading)", and I may add that many of the specimens are also badly stained. Of the series originally studied by Twomey, all are still at Carnegie Museum of Natural History except for the Coyoles paratype of *melloni*, which is now in the Peabody Museum of

Natural History, Yale University. Five of the six specimens from Manatee Lagoon, British Honduras, and all four of the specimens from Guapiles, Costa Rica, are so badly discoloured ventrally as to be almost valueless for colour comparisons. Enough clean specimens are available, however, to indicate that individual variation is rather marked, and transcends any supposed geographic variation within the range traditionally assigned to *astec*. It is clear that *melloni* Twomey is to be considered a synonym of *astec* Souancé.

In listing his paratypes, Twomey inadvertently repeated one catalogue number. The specimen collected at Trujillo, Honduras on 30 March 1948 should be no. 132,506 rather than no. 132,540.

Finally, it should be noted that Bond (1945 and subsequent publications), Marien & Koopman (1955), and Forshaw (1973) have all considered *Aratinga astec* to be conspecific with *A. nana* of Jamaica (*nana* being the senior name). After examining the series in the U.S. National Museum of *nana* (a form lacking in Carnegie Museum of Natural History), I agree with these authors that the differences between *nana* and *astec*, at least those visible in study skins, are so minor that the most reasonable taxonomic treatment is to consider them conspecific. It follows, therefore, that I advocate the recognition of three subspecies: *Aratinga nana nana* (Vigors) of Jamaica; *A. n. vicinalis* (Bangs & Penard) of Tamaulipas and northernmost Veracruz, Mexico; and *A. n. astec* (Souancé) of southern Veracruz, Mexico, south to Panama.

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The Taxonomic Status of the Scottish Crossbill *Loxia* sp.

by Alan G. Knox

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For many years now there has been controversy over the affinities of the Scottish Crossbill, described as *Loxia curvirostra scotica*, but sometimes placed as a race of the Parrot Crossbill *L. pytyopsittacus*. The problem centres on *scotica's* morphological intermediacy between nominate *L. c. curvirostra* and *L. pytyopsittacus*, and the fact that the race maintains itself in the face of repeated invasions of *c. curvirostra*, some of which remain to breed alongside the residents (for details and references see Knox, 1975). Sympatric breeding without any significant hybridisation (if any) indicates that reproductive isolation exists, and thus prevents the treatment of *c. curvirostra* and *c. scotica* as conspecifics. On the other hand, placing *L. c. scotica* with *L. pytyopsittacus* assumes absence of reproductive isolation, and that the two are directly related. Both assumptions lack evidence. It is just as likely that *L. c. scotica* and *L. pytyopsittacus* arose from ancestral *L. curvirostra* independently, and even if *L. pytyopsittacus* did arise from ancestral *L. c. scotica*, their differences would strongly suggest they are now isolated. With the above problem in view an investigation was made into the morphology of *L. c. scotica* and its closest relatives.

METHODS

From the skins of full grown *L. pytyopsittacus*, *c. scotica*, *c. curvirostra*, *c. guillemardi* and *c. poliogyna*, mandibular profile photographs were taken on the side to which the lower mandible crossed, and the following measurements made: culmen length (taken as a chord from the base of the feathering to the bill tip), lower mandible length (taken as a chord from the notch where the rami join to the tip), lower mandible width (maximum width where the rami enter the skin), and combined mandibular depth (at the base of the mandibles), as well as the wing length (flattened and straightened). Using the photographs and a camera lucida, the outline of each upper mandible was enlarged within a standard grid consisting of two parallel upright lines, one 5 cm long, perpendicular to the ends of a 7 cm horizontal baseline. The image of the base of the culmen at the feathering (A on Fig. 1a) was placed at the distal end of the 5 cm line on the grid (B on Fig. 1a), and the image was enlarged until the tip of the upper mandible fitted into the corner formed by the baseline and the other perpendicular (C on Fig. 1a). The outline was then drawn. For about half the birds it was necessary to reverse the grid as the bill crossed to the other side. From points at 5 mm intervals along the 7 cm baseline, starting 1 cm from the 5 cm line, and excluding the final point, the perpendicular distance from the baseline to the outline of the culmen (a-b, c–d, e–f to w–x) was measured in mm. These twelve measurements were then summed to give an *index of curvature*, a figure quantifying the culmen curvature. An *index of depth* (an indirect measure of upper mandible depth in relation to culmen length) was found by estimating the perpendicular distance of the proximal part of the upper mandibular tomium to the top of the 5 cm line (ID on Fig. 1b). From this index of depth, a corrected index of depth (taking into account variations in culmen length) was calculated thus:

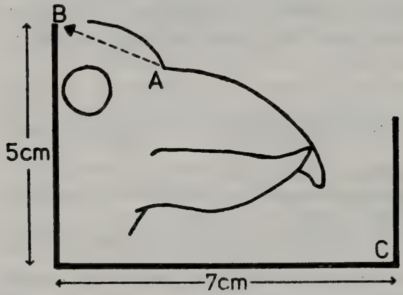

Figure 1a. Grid used for obtaining the index of curvature and index of depth, and the outline of the bill of a crossbill. For further explanation see the text.

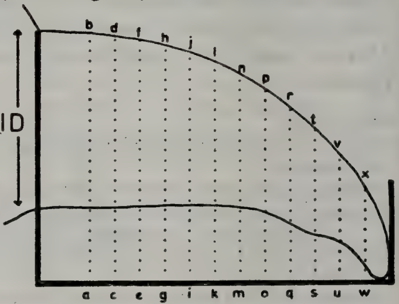

Figure 1b. The grid with the fitted outline of the upper mandible of a crossbill. Distances measured (in mm) and summed to give the index of curvature represented by dotted lines (a-b, c-d, e-f to w-x). ID= distance (in mm) used as index of depth.

$$\frac{\text{index of depth} \times \text{culmen length}}{70} = \text{corrected index of depth}$$

The value of the divisor has no special significance; in this case it is taken from the length of the grid baseline (in mm).

Although Witherby *et al* (1938) claimed that the bill depth for *scotica* was 12·5–14·5 mm compared to 10·5–12 mm in *c. curvirostra*, it was evident in my series that an overlap existed and that none of the measurements would distinguish all of *c. curvirostra* from all of *c. scotica* (Tables 1–8). The *c. curvirostra/c. scotica* assemblage was therefore divided into two geographical classes: (i) birds from the "Highland" area (the main range of *c. scotica:* the former counties of Perth, Aberdeen, Banff, Moray, Nairn, Inverness and Ross), and (ii) those from the remaining parts of the British Isles and Europe (excluding Spain and Asia Minor, where there may be other races involved). By treating the sexes separately, and plotting the width of the lower mandible against the index of curvature, it was found that the points representing birds from the two areas formed overlapping, but diagonally opposed clusters, with the exception of some points representing *c. curvirostra* immigrants collected in the "Highlands" (Fig. 2). The clusters were subjectively separated, and the averages and ranges of measurements for the groups calculated. The measurements of each bird collected in the British Isles were in turn repeatedly compared with those of the groups, to see into which the bird best fitted, and, if necessary, the averages and ranges of measurements for the groups then recalculated. Using this method, most birds were easily assigned to either *c. scotica* or *c. curvirostra*, though misidentification possibly occurred in a few cases.

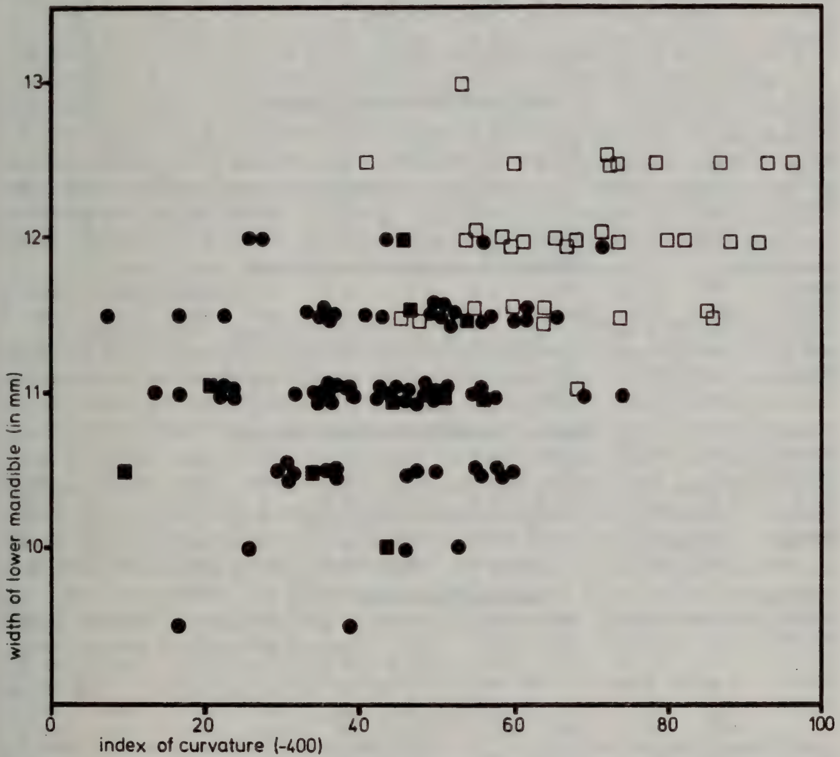

Figure 2. Width of lower mandible plotted against index of curvature for full grown male crossbills. Open squares, *L. c. scotica;* filled squares, *L. c. curvirostra* collected in the Highlands; filled circles, *L. c. curvirostra* collected in other parts of Britain and Europe.

TABLES 1–8 Linear and derived measurements of crossbills

TABLE 1 Wing length (in mm)

	L. pytyopsittacus		*L. c. scotica*		*L. c. curvirostra*		*L. c. poliogyna*		*L. c. guillemardi*	
	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀
Mean	104·7	101·6	99·4	96·6	97·7	95·3	96·0	94·2	97·5	94·0
Number	29	14	39	21	99	30	37	26	15	5
SD±	2·6	1·1	2·4	2·5	2·5	1·8	2·1	2·3	2·0	2·6
2SE±	0·96	0·58	0·77	1·08	0·50	0·66	0·70	0·90	1·02	2·02
Range	100–109	100–103	95–104	90–100	90–103	93–99	92–101	90–99	95–101	91–97

TABLE 2 Culmen length (in mm)

	L. pytyopsittacus		*L. c. scotica*		*L. c. curvirostra*		*L. c. poliogyna*		*L. c. guillemardi*	
	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀
Mean	20·3	19·7	18·9	18·8	18·8	18·6	18·7	18·2	19·9	18·7
Number	29	14	39	21	98	30	35	26	15	5
SD±	0·6	0·4	0·6	0·6	0·8	0·8	1·0	0·7	0·9	1·0
2SE±	0·24	0·20	0·20	0·26	0·17	0·31	0·32	0·26	0·48	0·94
Range	18·5–22·0	18·5–20·5	17·5–20·0	18·0–20·0	17·0–21·0	16·5–20·5	17·0–21·0	17·0–20·0	18·5–21·5	17·5–20·0

TABLE 3 Lower mandible length (in mm)

	L. pytyopsittacus		*L. c. scotica*		*L. c. curvirostra*		*L. c. poliogyna*		*L. c. guillemardi*	
	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀
Mean	12·9	12·8	12·2	12·0	12·0	12·0	11·7	11·6	12·7	12·4
Number	29	14	39	21	97	30	37	26	15	5
SD±	1·0	0·5	0·5	0·4	0·6	0·8	0·6	0·3	0·6	0·9
2SE±	0·36	0·24	0·16	0·16	0·13	0·31	0·20	0·12	0·32	0·80
Range	12·0–14·0	11·5–13·5	11·0–13·0	11·0–12·5	11·0–14·0	11·0–15·5	10·5–13·0	11·0–12·0	12·0–14·0	11·5–13·0

TABLE 4 Width of lower mandible (in mm)

	L. pytyopsittacus		*L. c. scotica*		*L. c. curvirostra*		*L. c. poliogyna*		*L. c. guillemardi*	
	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀
Mean	12·3	13·1	12·0	11·6	11·0	10·7	10·6	10·6	11·4	11·1
Number	28	13	35	21	93	29	34	25	15	4
SD±	0·6	0·3	0·4	0·5	0·5	1·0	0·4	0·3	0·4	0·4
2SE±	0·22	0·20	0·15	0·23	0·11	0·37	0·07	0·07	0·22	0·20
Range	11·5–14·5	12·5–13·5	11·0–13·0	10·5–12·5	9·5–12·0	10·0–11·5	9·0–11·0	10·0–11·0	10·5–12·0	10·5–11·5

TABLE 5 Depth of mandibles at base (in mm)

	L. pytyopsittacus		*L. c. scotica*		*L. c. curvirostra*		*L. c. poliogyna*		*L. c. guillemardi*	
	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀
Mean	13·4	13·0	11·6	11·5	10·7	10·5	10·6	10·5	11·0	10·5
Number	11	13	20	10	66	22	24	17	7	1
SD±	0·5	0·4	0·6	0·4	0·5	0·8	0·4	0·3	0·3	—
2SE±	0·31	0·48	0·27	0·24	0·12	0·34	0·16	0·16	0·22	—
Range	12·5–14·5	12·5–13·5	11·0–13·0	11·0–12·0	9·5–12·0	9·5–11·5	9·5–11·5	10·0–11·0	10·5–11·5	—

TABLE 6 Index of Curvature (–400)

	L. pytyopsittacus		*L. c. scotica*		*L. c. curvirostra*		*L. c. poliogyna*		*L. c. guillemardi*	
	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀
Mean	88·4	73·1	68·5	69·4	42·5	46·2	70·5	60·7	69·6	51·6
Number	29	14	38	21	97	30	36	26	15	5
SD±	11·1	13·7	14·7	18·5	13·9	12·4	12·7	11·5	14·0	18·2
2SE±	4·12	7·32	4·76	8·07	2·83	4·53	4·24	4·52	7·24	16·32
Range	53–107	53–103	41–93	45–109	8–74	22–68	40–92	42–85	46–95	26–72

TABLE 7 Index of Depth

	L. pytyopsittacus		*L. c. scotica*		*L. c. curvirostra*		*L. c. poliogyna*		*L. c. guillemardi*	
	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀
Mean	34·3	35·6	33·1	34·8	31·8	31·2	32·0	32·1	30·7	32·8
Number	29	14	38	21	97	30	36	26	15	5
SD±	1·7	1·8	2·3	1·6	2·2	2·6	1·9	1·7	1·8	1·3
2SE±	0·63	0·96	0·74	0·69	0·44	0·95	0·64	0·66	0·93	1·17
Range	32–39	33–39	29–40	32–39	28–37	26–35	29–36	29–35	27–34	31–34

TABLE 8 Corrected Index of Depth

	L. pytyopsittacus		*L. c. scotica*		*L. c. curvirostra*		*L. c. poliogyna*		*L. c. guillemardi*	
	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀
Mean	9·9	10·0	8·9	9·3	8·5	8·3	8·5	8·3	8·7	8·8
Number	29	14	38	21	97	30	35	26	15	5
SD±	0·4	0·5	0·5	0·4	0·6	0·5	0·4	0·4	0·5	0·5
2SE±	0·16	0·25	0·17	0·18	0·11	0·18	0·15	0·17	0·26	0·40
Range	9·2–11·1	9·5–10·9	7·9–10·6	8·5–10·3	7·2–10·3	7·6–9·2	7·0–9·5	7·2–9·2	7·9–9·9	8·0–9·2

TABLE 9

Coefficients of Difference (Mayr 1969: 189) for the measurements of male crossbills.

	L. pytyopsittacus and *c. scotica*	*c. scotica* and *c. curvirostra*	*L. pytyopsittacus* and *c. curvirostra*
wing length	1·06	0·35	1·37
culmen length	1·17	0·07	1·07
width of lower mandible	0·30	1·11	1·18
depth of combined mandibles	1·64	0·82	2·70
index of curvature	0·77	0·91	1·84

DISCUSSION

Tables 1–8 show that in wing length (which in crossbills is roughly proportional to body size) and culmen length, *c. scotica* is very similar to *c. curvirostra*, and in all measurements the degree of overlap is extensive (further details in Knox 1975). *L. pytyopsittacus*, on the other hand, is quite distinct, especially when two or more features are considered together. The superficial similarity between Scottish and Parrot Crossbills extends only to some aspects of bill shape (Table 9). Additional evidence for this morphological separation is found in comparing their respective song spectrograms, that of *c. scotica* being more like *c. curvirostra* than either is to *L. pytyopsittacus* (Knox, unpublished).

The large-billed *L. pytyopsittacus* (which feeds largely on pine *Pinus*) probably arose in north-west Europe before the advance of spruce *Picea* (on which *L. curvirostra* largely feeds) into the region. Since *L. pytyopsittacus* and *L. curvirostra* became sympatric, character displacement has probably emphasised the differences between them. Nevertheless, with reproductive isolation occurring between *c. curvirostra* and *c. scotica* (despite their similarities), it seems unlikely that *c. scotia* and *L. pytyopsittacus* are not also isolated. Since, additionally, there is no evidence at present to support the proposal that *L. c. scotica* and *L. pytyopsittacus* are directly related, it is recommended that the Scottish Crossbill be treated as a monotypic species, *Loxia scotica* Hartert, as previously suggested by Salomonsen (1963: 415). It is further suggested that there may be other forms of crossbill, at present designated subspecies, which should be likewise treated.

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Taxonomic and faunistic notes on birds of the Malay Peninsula

by D. R. Wells and Lord Medway

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The fifth and concluding volume of *The Birds of the Malay Peninsula* (Medway & Wells 1976), the text of which was completed on 20 May 1972 and closed to further amendment in proof on 31 December 1973, includes systematic citation of all birds known in the region at the latter date. For most taxa a skeleton synonymy indicates the authority for nomenclatural usage, but the arrangement of the book (which follows the general format of previous volumes) made it inappropriate to discuss purely taxonomic decisions. All new or possibly controversial nomenclature to appear is accordingly explained in the present paper. Other matter herein is faunistic, and includes the correction of previously published misidentifications which could distort the true picture of geographical distribution, range of habitats or status. We also take the opportunity to remark on changes in nomenclature introduced since 1973, and on some important revisions of range and two additional species discovered by recent fieldwork. Medway & Wells (1976) is referred to frequently merely by page number.

As in the book, the region denoted by the term "Malay Peninsula" (or in adjectival form "Peninsular") comprises the Republic of Singapore, the states of Peninsular Malaysia and the provinces of Southern Thailand north to precisely 10° N, including politically associated islands. All localities mentioned are listed in the gazetteer and/or shown in the maps in Medway & Wells (1976). The English and systematic nomenclature and the sequence of species follow the book; additional species are inserted according to their position in Deignan (1963).

Specimens were examined from the collections of the following institutions, cited in the abbreviated form indicated: Academy of Natural Sciences, Philadelphia (ANSP); American Museum of Natural History, New York (AMNH); private museum of Dr. Boonsong Lekagul, Bangkok (BLM); British Museum (Natural History), Tring (BMNH); Muzium Negara, Kuala Lumpur (MNKL); Peninsular Malaysian Game Department (PMGD); Rijksmuseum van Natuurlijke Historie, Leiden (RNH); Singapore national collections, late of the National Museum, now at the Zoology Department, University of Singapore (ZDUS); Thai national collections, Applied Scientific Research Corporation of Thailand, Bangkok (TNC); United States National Museum of Natural History, Washington, D.C. (USNM); University Museum of Zoology, Cambridge (CMZ); and Zoology Department, University of Malaya, Kuala Lumpur (ZDUM).

Measurements were made of the wing flattened and straightened, the tail flattened and measured from the base of the central rectrices, and the gape as a chord from the angle of the mouth to the tip of the longest mandible.

Little Grebe *Podiceps ruficollis*

Little Grebes may for long have bred undetected in Tale Noi, Tale Sap and other natural open waters or swamps in the Thai provinces of the Malay Peninsula, but in the Malaysian states the presence of resident populations has been confirmed only in artificial habitats of modern origin, suggesting a recent extension of range. Peninsular birds were assigned to *P. r. philippensis* by Robinson & Kloss (1921) and by later authors until Deignan (1963) identified all Thai specimens (mentioning examples from the Peninsular provinces of Trang and Phatthalung) as *P. r. poggei*. On this authority we tentatively extended the range of *poggei* to include also the Malaysian states (p. 77). Available comparative material shows no consistent plumage differences between topotypes of *poggei* and *philippensis*, notwithstanding the distinctions claimed by Reichenow (1902): the colour of the underparts and extent of black on the chin are particularly variable. There are however significant differences between the two races in the size of the bill, in which all specimens from the Malay Peninsula conform with *P. r. poggei* (Table 1).

We noted that a bird in non-breeding plumage taken in the northern winter on the small island of Pisang (which lacks freshwater habitat suitable for a resident population) was probably a migrant. Sizeable flocks on Tale Noi in February and September 1974 (Holmes & Wells 1975) also suggest migration, which might therefore explain reports of subspecific intergrades in extralimital peninsular Thailand (Robinson & Kloss 1921) and southern Vietnam (Delacour & Jabouille 1931). From his description, however, Riley's (1938: 20) identification of *P. r. albipennis* (= *capensis*) in Trang province is clearly wrong; it was ignored by Deignan (1963).

TABLE 1

Measurements (mm) of Little Grebes *Podiceps ruficollis*

	Locality	*No.*	*Wing-length*	*Dimensions of bill*		*Collection or reference*
				Gape	*Depth at angle of gonys*	
P. r. poggei	China	10	97–108	25·0–29·6	5·1–6·6	BMNH
	Malay Peninsula	5	97–102	24 –29	5·0–5·2	BMNH, CMZ[1], ZDUS, PGMD, USNM
P. r. philippensis	Luzon[2]	4	97–110	29·2–33·3	5·4–6·4	BMNH

Notes: [1] Specimen kindly examined by Mr. C. W. Benson
[2] Birds in nuptial plumage only

Red-billed Tropic Bird *Phaethon aethereus*

D. Goodwin (*in litt.*) has confirmed that the only known specimen of a tropic bird collected within the defined limits of the Malay Peninsula (BMNH 1880.1.1.3423), although rather dirty and discoloured, is attributable to *P. a. indicus*.

Blue-faced Booby *Sula dactylatra*

On visits in March and July 1973, Langham, Wells & Charles (1973, 1974) found no Blue-faced (= Masked) Boobies on the island of Pulau Perak, the only known nesting locality within the limits of the Malay Peninsula (p. 80), and concluded that the former small breeding population is now extinct. Thus it may now be impossible to check Gibson-Hill's (1956) attribution of this population on geographical grounds to the subspecies *bedouti*, generally regarded (e.g. Condon 1975) as a synonym of *S. d. personata*.

Grey Heron *Ardea cinerea*

The Grey Herons of Malaysia and Indonesia share the habit of nesting in mangrove. Mees (1971) thought it likely that breeding birds of the west coast of Peninsular Malaysia would prove attributable to *A. c. altirostris*, the subspecies described by him from Java and Sumatra, rather than *A. c. jouyi* (type locality Japan) in which they were placed by Vaurie (1965). Our series together with ten BMNH specimens from various parts of China, show overlap not only in the length of the bill but also in its depth, the character considered critical by Mees. Of the five specimens from the Malay Peninsula (Table 2), only those from Trang and Pulau Ketam, Selangor, are within the size range of *altirostris*; the other three are too small, including one from Matang, a district of extensive mangrove and a known breeding haunt. Long-billed birds, with culmen 127–133 mm, have also been taken far inland in northwestern Thailand on 24 March (ZDUS) and 7 August (Gyldenstolpe 1916) and in Laos on 22 January (BMNH 1936.4.12.859). Eleven other specimens taken in the Thai-Indochinese region during the northern winter (BMNH, ZDUS) fall within the size range of *jouyi*. Some of these may have been migrants from temperate latitudes: birds ringed in Russia have been recovered in northern Thailand (McClure 1974) and all records from northern and northwestern Borneo were attributed to migrants by Smythies (1968). Yet there is at present no evidence that migrants reach the Malay Peninsula and the dates of the two smallest specimens fall outside the normal wintering sojourn of migratory ardeids in the area. If our sample is representative of the resident Peninsular population, this is apparently to some extent intermediate between *jouyi* and *altirostris;* but until a larger number of authentic breeding adults is available we have retained existing nomenclature (p. 84).

TABLE 2

Bill measurements (mm) of Grey Herons *Ardea cinerea* taken according to Mee's (1971) technique

Locality	*Number or Sex*	*Age*	*Culmen*	*Bill depth*	*Date*	*Collection or reference*
A. c. jouyi						
China & Japan	17 ♂♀		105–126	22·5–26·7	—	Mees (1971) & BMNH
Kapang, Trang	o	imm	129	25·5	31 Dec	ANSP 138493[1]
Perak	♀	ad	107	23·5	26 May	ZDUS
Matang, Perak	♀	ad	110	23·5	1 Jan	ZDUS
Pulau Ketam[2]	♀	ad	114	24·5	3 Jan	MNKL 587
Singapore	♀	imm	108	24·0	26 Aug	ZDUS
A. c. altirostris						
Java & Sumatra	28 ♂♀		111–137	24–29	Mar–Nov	Mees (1971)

Notes: [1]Kindly measured by Dr. F. B. Gill
[2]A known breeding site

Crested Honey Buzzard *Pernis ptylorhyncus*

The identification of all migrants as the eastern Palaearctic subspecies *P. p. orientalis* (p. 104) discounted Stresemann's (1940) attribution of four winter specimens from Trang, Perak and Malacca to *P. p. ruficollis*, the subspecies breeding from India through subtropical Southeast Asia (Vaurie 1965). One of these (unsexed, labelled "Malacca, 7 January 1885") could well have been a trade skin and is therefore of uncertain provenance (see Medway & Wells 1976: xiv); two can be shown to conform with *P. p. orientalis;* only one is potentially controversial.

No plumage characters satisfactorily distinguish the two races. Differences in tail coloration asserted by Stresemann (1940) were not corroborated in a larger sample (Vaurie & Amadon 1962). Stresemann's statistic (100 × tail-length/wing-length) is equally unhelpful. Some attention has been paid to an average difference in the length and shape of the wing, which presumably reflects comparative migratory performance. Stresemann's use of the wing-tip length (longest secondary to longest primary in the closed wing), however was not critical because he excluded the small birds of Japan which at that time he considered distinct from *P. p. orientalis*. Vaurie & Amadon (1962) compared wing-tip as a percentage of total wing-length (wing tip index), but computations from Stresemann's figures do not support the clear-cut separation claimed. In Table 3, measurements of *orientalis* (gathered from the literature and from specimens in BMNH) derive exclusively from examples collected in the Palaearctic; the sample is large. Measurements of *ruficollis* were taken from specimens collected in the Indian subcontinent on nests and/or between mid-May and late August. It is seen that by all criteria the Perak birds conform with *orientalis*. The Trang male has a long wing but a short wing tip (both absolutely and relatively) and is unidentifiable. The occurrence of *P. p. ruficollis* in the Malay Peninsula therefore remains unconfirmed, despite the fact that Vaurie & Amadon (1962) identified a long series of winter birds from Java and most of their measurements fall within the limits shown in Table 3.

TABLE 3

Measurements (mm) of Crested Honey Buzzards *Pernis ptilorhyncus*

Locality	*Number Sex*	*Wing-length*	*Wing-tip*	*Wing tip index*	*Date*	*Collection or references*
P. p. orientalis						
Palaearctic	♂♂	410–476	100–161	24–38	See text	See text
Palaearctic	♀♀	410–501	100–172	23–36	See text	See text
Trang	♂	433	85	20	4 Jan	Stresemann (1940) & BMNH
Perak	♂	414	105	25	7 Dec	Stresemann (1940)
Perak	♀	440	104	24	7 Dec	Stresemann (1940)
P. p. ruficollis						
India	5 ♂♂	363–403	80–121	21–31	May–Aug	BMNH
India	9 ♀♀	326–419	72–140	19–34	May–Aug	BMNH

Philippine Banded Crake *Rallina eurizonoides*

Ripley (1961) and Ali & Ripley (1969a) recognised a single South and Southeast Asian continental subspecies under the name *R. e. amauroptera* (Jerdon), type locality "Northern India", including in its synonymy *Rallus superciliaris* Eyton, type locality "Malacca". Deignan (1963), however, recognised two sub-species in Thailand: *R. e. amauroptera* and, south of the Isthmus of Kra, *R. e. telmatophila* Hume, type locality "a few miles inland from Malacca". Comparative measurements (Table 4) do not support this distinction, but they do separate the breeding birds of the Indian subcontinent. According to Ali & Ripley (1969a) wing-lengths of *R. e. amauroptera* of the subcontinent fall within the range 122–132 mm. Measurements of material in BMNH show slightly greater variation but, excluding three northeastern skins bracketed in Table 4, they still show very little overlap with available specimens from all parts of Southeast Asia.

Deignan's (1963: 30) specific mention of Trang only, which ignored other records from the Peninsular provinces of Thailand certainly known to him (see Riley 1938: 78–79), implies that he considered the male collected near the base of Khao Nam Pliu on 9 March (Riley 1938; USNM) to have represented a resident Peninsular population, the others migrants. However, this date is six weeks earlier than the latest interception of spring migrants at Fraser's Hill, Malaysia (Wells 1972; Medway & Wells 1976: 129) and is by no means proof that the bird was in its breeding area. There are no dated specimens or other records from any part of the Malay Peninsula between 17 April and 30 October (BMNH—a date overlooked in the text of Medway & Wells 1976), and thus no evidence of a resident population.

Since this rail does not occur in the Palaearctic region (Vaurie 1965), the breeding grounds of the Peninsular population can only lie in more northerly parts of Southeast Asia. Long-winged birds comparable in size to the Peninsular sample and exceeding the limits of *amauroptera* have been taken in Burma north to the Shan States and in northern and southern Thailand, in Laos and central Vietnam (Table 4). There is adequate evidence of migratory behaviour at least in the west of this area: the bird from Doi Angka (USNM 472372), taken at 4,500 ft, was almost certainly on passage at that altitude; that from Thaunggyi (BMNH 1928.9.18.3) is labelled "On migration"; and one from Theyetmyo was said by Oates (1883) to have flown into a house verandah. The February record from Bhutan (BMNH 97.12.10.1850) may indicate extension into the eastern Himalayas, but *amauroptera* has been reported nesting in the outer Himalayas (Ali & Ripley 1969a) and this bird, together with the specimen collected in Bengal in January (BMNH 97.12.10.1851) and the undated skin from Nepal are all likely to be wintering migrants.

TABLE 4

Measurements (mm) of Philippine Banded Crakes *Rallina eurizonoides*

Locality	*Number Sex*	*Wing-length*	*Date*	*Collection or reference*
R. e. amauroptera				
Assam, Sikkim, India & Ceylon	24	120–135	(Assam: Jun, July)	BMNH[1]
Bhutan	o	145	Feb	BMNH
Nepal	o	141	—	BMNH
Barrackpore, Bengal	o	141	Jan	BMNH
Thaunggyi, Burma	o	143	4 May	BMNH
Theyetmyo, Burma	o	142	6 May	BMNH
Theyetmyo, Burma	o	140	—	BMNH
Ok Yam, Laos	o	141	3 Jan	BMNH
Quang Tri, Vietnam	o	145	—	Delacour & Jabouille (1931)
Thua Luu, Vietnam	o	136	15 Feb	BMNH
Doi Angka, north Thailand	♀	138[2]	14 Apr	USNM
Ban Tha San, south Thailand	o	137	28 Mar	BMNH
Malay Peninsula	12 ♂ ♀	134–143	30 Oct–17 Apr	Robinson & Kloss (1919b), Riley (1938), Medway & Wells (1970), Wells (1972); BMNH, ZDUM
Malay Peninsula	8 o	134–151	undated	BMNH

Notes: [1] The only examples from the Indian subcontinent in BMNH which have wings exceeding this range are the three bracketed together.

[2] Kindly measured by Dr. R. L. Zusi.

Chinese Crested Tern *Sterna zimmermanni*

The Chinese Crested Tern was listed under this name (p. 165), now superseded by *S. bernsteini* Schlegel (Mees, in press).

Jambu Fruit Dove *Ptilinopus jambu*

Evidence was given (p. 169–70) that birds cross the sea on nocturnal flights. The extent of dispersal has since been demonstrated by the recovery of a Malaysian-ringed bird in mid Sumatra (Wells 1975).

Himalayan Cuckoo *Cuculus saturatus*

The grounds for transferring the taxon *lepidus* from *Cuculus poliocephalus* to *C. saturatus* have been explained by Becking (1975) and Wells & Becking (1975).

Drongo Cuckoo *Surniculus lugubris*

Robinson (1928: 249) claimed that a young Drongo Cuckoo was found in the nest of the Chestnut-crowned Flycatcher Warbler *Seicercus castaniceps* at Fraser's Hill, a hill station generally above 3500 ft elevation. The male foster parent was collected and is not in question; there are however good reasons for rejecting the identification of the cuckoo. The host warbler has not been recorded in the Malay Peninsula below 2700 ft (p. 326), while the Drongo Cuckoo—except on migration—has not been found above this height (p. 187). Evidently the normal altitudinal ranges of warbler and cuckoo are exclusive. Neither in the Malay Peninsula nor elsewhere (Hoogerwerf 1949, Smythies 1953, Ali & Ripley 1969b) do known broodhosts of the Drongo Cuckoo include warblers of the genus *Seicercus*. *S. castaniceps* moreover is now recognised as the regular local foster of the Himalayan Cuckoo which is montane in distribution in the Malay Peninsula, occurs at Fraser's Hill and was presumably the species involved on this occasion.

Lesser Coucal *Centropus bengalensis*

Deignan (1963) followed Grant & Mackworth-Praed (1939) who united in one species the Lesser Coucals of Asia, Africa and Madagascar, for which the name *toulou* has priority. However Parkes (1957) noted that Asian and African forms are more similar to each other than either is to Malagasy birds, and Benson *et al.* (1970) drew attention to differences in habitat and voice separating African and Malagasy birds. From field experience in both regions, D.R.W. can confirm that the calls and preferred habitat of African and Asian birds are similar. It thus appears correct to separate the Malagasy population (*C. toulou*) from the remainder, for which the prior specific name is *bengalensis*.

Javan Frogmouth *Batrachostomus javensis*

Additional measurements (TNC; living birds) not available to Stresemann (1937) have shown that there is no gap in size between the apparently parapatric taxa *affinis* and *continentalis*, and they are accordingly treated as conspecific (p. 200). The allocation of both taxa to *B. javensis* forces the removal from this species of *cornutus*, which is sympatric with *affinis* in the lowlands of Sumatra and Borneo. That *cornutus*, with *longicaudatus* of the Kangean islands (Java Sea), may constitute a separate mid-Sundaic species is indicated on morphological grounds.

Swiftlets

Brooke (1970) proposed the subgenus *Hydrochous* for the Giant Swiftlet, and later (Brooke 1972a) separated the swiftlets into three full genera. The evidence of the capacity to echolocate, or lack of it, supports this arrangement (Medway & Pye, in prep.). Among Peninsular swiftlets, only the species *esculenta* remains in the genus *Collocalia* (of which it is the type). The revised nomenclature of the remainder is as follows:

Giant Swiftlet	*Hydrochous gigas*
Edible-nest Swiftlet	*Aerodramus fuciphagus*
Black-nest Swiftlet	*Aerodramus maximus*
Himalayan Swiftlet	*Aerodramus brevirostris*

White-throated Spinetail Swift *Chaetura caudacuta*

From Java, Mees (1971) has reported one specimen of the eastern Palaearctic *C. c. caudacuta* (collected on 14 Nov.) and two of *C. c. nudipes* (both 26 Dec.). Both subspecies evidently may be expected to occur on passage in the Malay Peninsula, where no examples have yet been collected. The normal wintering grounds of *C. c. caudacuta* are in Australasia (Condon 1975). The collection date of *nudipes* is a full month after the latest observation of the species in the Peninsula and supports the suggestion of Bartels & Stresemann (1929) that *nudipes* may winter in Java.

Asian Palm Swift *Cypsiurus balasiensis*

We have accepted Brooke's (1972b) argument that African and Asian palm swifts are separate species, although Ledger (1971) has found on both the feather louse *Dennyus cypsiurus*, and feather lice are normally extremely host-specific. The correct spelling of the name *balasiensis* has been investigated by Medway (in press).

Cinnamon-rumped Trogon *Harpactes orrhophaeus*

A female from Surat Thani (USNM 330231) identified with some reservation by Riley (1938: 166) has proved on re-examination to be an immature Red-rumped Trogon *H. duvaucelii*. This was presumably noticed by Deignan who did not list *H. orrhophaeus* from Thailand (Deignan 1963).

Red-headed Trogon *Harpactes erythrocephalus*

As briefly noted (p. 214), a male and two females collected on Khao Luang, Nakhon Si Thammarat, in May 1965 by Ben King provided the first records of this trogon from the Thai provinces of the Malay Peninsula. These were identified as *H. e. chaseni* (type locality in the Malaysian Main Range) after comparison also with specimens of the neighbouring subspecies *H. e. erythrocephalus*, *H. e. annamensis* and *H. e. klossi* in BMNH and ZDUS.

Measurements are not diagnostic. Previous authors (Robinson 1915a; Robinson & Kloss 1919a; Riley 1934; Schauensee 1934) based distinctions on the shade of the upperparts and/or barring of the wing-coverts. The Khao Luang birds are darker above than examples of *klossi* and *erythrocephalus* in ZDUS, but comparison of BMNH material including both sexes of all four subspecies showed no convincing differences in these characters; it is assumed that long exposure to heat and high ambient humidity has affected the coloration of Singapore specimens. Final identification was based on the male (USNM 534644) in which the vinaceous shade of the head and breast, distinct from the red of the underparts, closely matches a series of *H. e. chaseni*. Male *annamensis* are not dissimilar, but the geographically interposed subspecies *klossi* has the head much brighter red, concolorous with the underparts, and *H. e. erythrocephalus* of peninsular Burma is intermediate in this respect.

Pied Hornbill *Anthracoceros coronatus*

As noted (p. 229), differences in the tail pattern among Pied Hornbills of the southern portion of the Malay Peninsula are attributable to individual variation and do not support a separation into two species. We have recognised as the boundary between subspecies the line along which the purported species were claimed to meet (Deignan 1963), north and west of which there is no variability in tail pattern. South and east of this line, some birds have the four outer pairs of rectrices all white, as does the type of *convexus* (Temminck & Lauguier 1838: pl. 530), while others have varying amounts of black on the basal parts of these feathers, often highly irregularly and asymmetrically distributed. Robinson (1927: 104) suggested that the black pigmentation in these feathers is a juvenile character in this population. However, while it is true that of seven specimens from Peninsular Malaysia in BMNH, only the three with the largest casques (denoting old age) have all white outer rectrices, the sample with black basal pigmentation includes undoubted adults as well as immature birds. It is possible that the elimination of black from these feathers is progressive throughout a bird's life, and finally complete at an extreme age, but there is certainly no special juvenile plumage involved. Since examples occur also in Java (AMNH 645095; kindly examined, with other specimens, for us by Dr. L. L. Short), variability in tail pattern is evidently a character of the subspecies *convexus* (type locality Java). However, our data are insufficient to test for clinal variation in the frequency of occurrence of black in the outer rectrices; should the southern Peninsular population prove separable, the name *intermedius* Blyth (1847) appears to be available.

Rufous Woodpecker *Micropternus brachyurus*

Short (1973) submerged *Micropternus* into the otherwise neotropical genus *Celeus*, of which he considers *brachyurus* a typical member (pers. comm.).

Orange-backed Woodpecker *Chrysocolaptes validus*

Short (1973) has allocated this species to a monotypic Sundaic genus *Reinwardtipicus* Bonaparte.

Green Broadbill *Calyptomena viridis*

Robinson & Kloss (1923a) demonstrated a cline of increasing average size from south to north among the Green Broadbills of the Malay Peninsula and distinguished their new subspecies *continentis* (type locality Chumphon province) from *viridis* (type locality Benkulen, Sumatra) solely by its longer wing. Subsequent collection has provided larger samples, reducing the overall metrical difference, and successive authors (Robinson & Kloss 1923a; Chasen 1935; Riley 1938; Gibson-Hill 1949; Deignan 1963) have differed in their positioning of the boundary between these subspecies. Measurements available to us (Table 5) show that the range of variation in wing-length of birds from the extreme south of the Peninsula is smaller than elsewhere and falls largely within the zone of overlap between *viridis* and *continentis*. The abrupt disappearance of long-winged birds between Negri Sembilan (where some measure 110 mm) and Malacca may prove spurious, but present data justify tentative taxonomic separation of the population of these southern states (p. 251).

TABLE 5

Measurements (mm) of Green Broadbills *Calyptomena viridis*

Locality	*Number Sex*	*Wing-length*	*Collection or reference*
C. v. continentis			
Chumphon	♀ (type)	112	Robinson & Kloss (1923a)
Chumphon	♂ (type)	106	Robinson & Kloss (1923a)
Ranong & Chumphon south of Phuket	8	100–112 (av. 107)	Robinson & Kloss (1919b, 1921)
All Thai provinces of Malay Peninsula	13	99–112	Robinson & Kloss (1923a)
Pahang, Selangor & Negri Sembilan	77	96–112 (av. 103)	Mist-netted birds, 1961–72
Malacca, Johore & Singapore	15	97–104 (av. 100)	BMNH[1]
C. v. viridis			
Sumatra	5	93–103	BMNH

Note: [1]Excluding 19th century trade skins, recognised by their labelling and cylindrical shape.

Dusky Crag Martin *Hirundo concolor*

Since completion of our text, Holmes & Wells (1975) and Wells (1975) have reported first records of this species from the Malay Peninsula on islets off Phangnga, at Ao Luk, Krabi province, and near Gopeng, Perak state. Subsequently, small groups were seen near Kuala Kangsar, Perak, in September and at Batu Caves, Selangor, in February, March and September 1975 (D.R.W.), establishing a new geographical limit in the Peninsula and extending the known range of the Dusky Crag Martin in Southeast Asia south by 1300 km. The local status of the species is not yet clear; in India it is sedentary (Ali & Ripley 1972).

House Martin *Delichon urbica dasypus*

Flocks of House Martins were seen by D.R.W. near Bukit Tinggi, Padang Highlands, Sumatra, on 6 March 1974, adding this island to the known wintering range in Southeast Asia (p. 259).

Black-faced Cuckoo-Shrike *Coracina novaehollandiae*

A male, said by Riley (1938 : 277) to have been collected by H. M. Smith in Nakhon Si Thammarat province on 11 March 1929, was actually taken in eastern Thailand, possibly on the Korat plateau (see Riley's account of Smith's collecting trips). The discrepancy was evidently noted by Deignan (1963) who did not list the species south of the Isthmus of Kra.

Slender-billed Crow *Corvus enca*

Specimens from Kedah and the Yala-Pattani border reported by Bonhote (1901) are in fact Large-billed Crows *Corvus macrorhynchos*, with characteristically arched mandibles and heavy beaks, 21 and 22 mm deep, respectively, at the anterior margin of the nostril (CMZ). The erroneous identification has not been repeated in the regional literature, but we have not seen it formally corrected.

Red-winged Shrike Babbler *Pteruthius flaviscapis*

Chasen (1935) allocated all Peninsular populations to the subspecies *aerulatus* (type locality Tenasserim), noting that "some specimens" from the Malaysian states were intergrades with *cameranoi* (type locality Sumatra).

Subsequently Deignan (1946) separated the population of the Surat Thani-Nakhon Si Thammarat mountains, under the name *schauenseei*, and assigned Malaysian birds to *cameranoi* (Deignan 1964).

TABLE 6

Measurements (mm) of Red-winged Shrike Babblers *Pteruthius flaviscapis*

Locality	*Number & Sex*	*Wing-length*	*Collection or reference*
P. f. schauenseei			
Surat-Nakhon mountains	>8 ♂♂[1]	66–77	Deignan (1946), BMNH, USNM, ZDUS
Surat-Nakhon mountains	>6 ♀♀[1]	69–75	Deignan (1946), BMNH, USNM, ZDUS
P. f. cameranoi			
Sumatra	6 ♂♂	73–78	BMNH, RNH
Sumatra	7 ♀♀	72–78	BMNH, RNH
Peninsular Malaysia	16 ♂♂	75–81	BMNH, ZDUS
Peninsular Malaysia	8 ♀♀	75–78	BMNH, ZDUS

Note: [1] Deignan (1946) did not list the number of specimens he measured.

Peninsular Malaysian birds are distinctly darker coloured and also larger in size than *P. f. schauenseei* (Table 6). They are also distinguishable from Sumatran birds by small but appreciable colour differences, Malaysian males being slightly lighter underneath and slightly less pink on the flanks and females slightly less warm buff on the lower breast and abdomen. In wing length, however, our samples showed 50% overlap between males and 87% between females. Clearly, birds of the Peninsular Malaysian mountains are closer to those of Sumatra than to those of the Peninsular provinces of Thailand, and formal separation under another name would obscure this affinity.

Lesser Shortwing *Brachypteryx leucophrys*

In all collections from the Surat Thani-Nakhon Si Thammarat mountains (Robinson 1915b; Robinson & Kloss 1923b; coll. B. King 1965, USNM) the males are hen-plumaged. This population was considered indistinguishable from *B. l. leucophrys* (type locality Java) and listed under that name by Robinson (1928) and Chasen (1935) but, presumably on geographical gounds, was transferred to *B. l. wrayi* (type locality Malaysian mountains) by Deignan (1963).

While the males of at least one extralimital form are dimorphic, existing in both blue and brown phases (Ali & Ripley 1973), in our experience of Peninsular Malaysian *wrayi* all males are invariably at least partly blue, even among the populations of outlying peaks where selection for sexual dimorphism might conceivably be reduced. Malaysian birds are also on average slightly smaller than examples from Peninsular Thailand (Table 7). Javan birds do not differ in size from the Thai sample and some can be exactly matched in colour. But among 26 males from West Java (RNH), 11 have slate-blue lores, with a variable spread of this colour along the upper edge of the supercilium, round the eye to the ear-coverts and sides of the throat and face (an extreme condition present only in RNH 67017); some also have the pectoral band distinctly slaty. The progressive extension of blue colour is assumed to develop with age. Birds with blue in the plumage are also distinguished by the comparative whiteness (rather than rusty buff) of throat and abdomen and the prominence of the white supercilium. Precisely similar differences in ventral colour and the conspicuousness of the supercilium are apparent between fresh males from Khao Luang (USNM 535052 and –54); yet the presumably older male has no trace of blue on the head or breast.

These Thai birds are clearly distinct from *B. l. wrayi*. Yet our attribution to *B. l. leucophrys* (p. 314), while following precedent, is no more than a provisional expedient. Their true affinity seems likely to be with more northerly populations. It is significant that among Burmese males (identified as *B. l. nipalensis*) "the blue phase is rare (if indeed it occurs at all)" (Smythies 1953: 107), and the male *B. l. carolinae* in northern Thailand "seems never to acquire a slate-blue plumage" (Deignan 1945: 407).

TABLE 7

Measurements (mm) of Lesser Shortwings *Brachypteryx leucophrys*

Locality	*Number, Sex*	*Wing-length*	*Collection*
B. l. wrayi			
Peninsular Malaysia	11 ♂♂	58–63	ZDUM, ZDUS
Peninsular Malaysia	5 ♀♀	55–60	ZDUM, ZDUS
B. l. leucophrys			
West Java	26 ♂♂	60–65	RNH
Surat-Nakhon mountains	6 ♂♂	61–64	USNM, ZDUS
Surat-Nakhon mountains	4 ♀♀	58–62	USNM, ZDUS

Chestnut-crowned Flycatcher Warbler *Seicercus castaniceps*

Of eight birds collected by Ben King on Khao Luang peak, Nakhon Si Thammarat, in April–May 1965, three match the description of adult *S. c. youngi* (Robinson 1928: 247–248). The other five are in a different plumage, presumably juvenile, which was not described by us (1976), namely: white eye-ring and wing and tail coloration as adult; mesial crown stripe and supercilium dull olive-orange, separated by blackish lateral crown-stripes; back, chin, throat, breast and flanks grey, faintly washed olive-yellow; vent, thighs and under tail-coverts bright yellow; iris dark brown; upper mandible dark brown, lower yellow or dull orange. The bird illustrated by Grönvold (Robinson 1928: pl. 20) in fact is similar, although not described in the text; it was collected on Khao Luang in March. It is notable that the juvenile *S. c. youngi*, with yellow in the plumage of the underparts, resembles *S. c. butleri* more closely than does the adult.

White-throated Flycatcher Warbler *Abroscopus superciliaris*

Deignan (1947a, 1963) misplaced the type locality of *A. s. bambusarum*, Khao Phanom Bencha, which is in Krabi province.

Arctic Leaf Warbler *Phylloscopus borealis*

Vaurie (1954) showed that Parkes & Amadon (1948) and, following them, Gibson-Hill (1950) were not justified in attributing short-winged birds wintering in parts of Southeast Asia (including the Malay Peninsula) to *P. b. kennicotti*. Separation is possible by the length of the bill, but we are aware of no authentic identifications of *kennicotti* from the Peninsula and accordingly have omitted this subspecies (p. 328).

White-fronted Flycatcher *Ficedula hyperythra*

Deignan's (1947b, 1963) broad concept of the genus *Muscicapa* has not been universally accepted, and we are not alone in partially rejecting it (e.g. Vaurie 1965; King, Woodcock & Dickinson 1975). There is one nomenclatural consequence of our arrangement. Within the genus *Ficedula* as we recognise it, the name *malayana* Ogilvie-Grant, which was used for the Peninsular population of the White-fronted Flycatcher by Chasen (1935) and Gibson-Hill (1949), is a junior homonym of *F. solitaris malayana* Sharpe. Under Deignan's (1947b) scheme the synonym (*Dendrobiastes hyperythrus*) *sumatranus* Hachisuka was not available, being preoccupied by *Niltava sumatrana* Salvadori; accordingly he provided a new name, *oliga* Deignan. Since we believe that the distinctions are sufficiently marked to justify retention of the genus *Niltava* (including the Malaysian Niltava *N. sumatrana*) the problem of homonymy no longer arises and Hachisuka's name thus becomes available in priority to Deignan's (p. 347).

Blue-throated Flycatcher *Cyornis rubeculoides*

A specimen taken in Kelantan on 28 August (Bonhote 1901, CMZ) proved on re-examination to be an adult male Tickell's Blue Flycatcher *Cyornis tickelliae*. Although the misidentification has not passed into the regional literature, we take this opportunity to correct it as it precedes by a month the known first date of autumn arrival.

Hill Blue Flycatcher *Cyornis banyumas*

A blue flycatcher (USNM 170508) taken on Singapore island tentatively identified by Riley (1938 : 451) as *Cyornis whitei caeruleifrons* (—*C. b. coerulifrons*) proved on re-examination to be an adult male Mangrove Blue Flycatcher *Cyornis rufigastra*. Again, the misidentification has not passed into the regional literature, but still requires correction.

Black-collared Starling *Sturnus nigricollis*

This starling has recently been added to the Peninsular list with records from Surat Thani and Phangnga provinces in February and October 1974 (Holmes & Wells 1975).

Black-throated Sunbird *Aethopyga saturata*

One of each sex was collected by Ben King on Khao Luang in May 1965 (providing the first records for Nakhon Si Thammarat—p. 377), but unfortunately the specimens are inadequate for subspecific identification. The male is at an early stage of post-juvenile moult, and although the female matches some specimens of *A. s. anomala* racial differences are slight in this sex.

Yellow-backed Sunbird *Aethopyga siparaja*

A specimen from inland Kelantan (Bonhote 1901, CMZ) proved on re-examination to be a male Scarlet Sunbird *Aethopyga mystacalis* in post-juvenile moult, and thus does not invalidate our observation (p. 378) that in the Malaysian states the Yellow-backed Sunbird is confined to the coastal strip and islands.

Fire-breasted Flowerpecker *Dicaeum ignipectus*

Robinson (1928: 278) doubted the records published by Bonhote (1901) from the lowlands of Phatthalung and Kelantan (cf. Gibson-Hill 1949). On re-examination the specimens proved to be juvenile or female Orange-bellied Flowerpeckers *Dicaeum trigonostigma* (CMZ). Although finding no other basis for Deignan's (1963) inclusion of Phatthalung in the range of the Fire-breasted Flowerpecker, we have retained the record (p. 386). Examples have been collected on the Trang side of the dividing range (Riley 1938: 514) and the species can hardly be absent from Phatthalung.

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The subspecific status of the southern African populations of *Streptopelia semitorquata* (Rüppell)

by P. A. Clancey

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The large collared dove, the Red-eyed Dove *Streptopelia semitorquata* (Rüppell), of the Ethiopian Region ranges widely from Senegal in West Africa, east to Ethiopia, Eritrea and Somalia, as well as Yemen in the southwest of the Arabian Peninsula, and south through Africa to the Cape. It was first shown as exhibiting geographical variation by von Erlanger (1905) and later by Grant (1915), who was the first worker to review the species as a whole. Among later authors who dealt with the geographical variation of this dove in depth were Gyldenstolpe (1924), Friedmann (1930), Roberts (1935) and Chapin (1939). Friedmann believed only two subspecies warranted recognition: *S. s. semitorquata* (Rüppell) 1837: Taranta Mts, Acchele Guzai, Eritrea, and *S. s. minor* (Erlanger) 1905: Fanole and Kismayu, Somalia. His findings were in the main endorsed by Chapin, and both authors found little justification for the continued maintenance of a West African form, *S. s. erythrophrys* (Swainson) 1837: Senegal, as initially advocated by Grant and some later workers. Recent authors, notably White (1965) and very recently Nowak (1975), have gone so far as to maintain that, despite the readily demonstrable variation, races are not admissible. In turn, I do not find this latter view acceptable in the light of some recent work of my own.

Examination of a large body of material from southern, central and eastern Africa effected in the Durban Museum indicates that individual variation in this dove is not inordinately high and has been seriously overstated by many workers. Characters assessed as of importance in arranging the populations in subspecific taxa are often quite well marked and geographically correlated. Variation in *S. semitorquata* affects general size, the level of saturation of both the upper- and under-parts and the extent of grey over the distal wing surfaces, but only the latter two constitute subspecifically significant parameters. Wear and insolation result in a general browning and darkening of the plumage with the loss of the waxy greyish patina of the newly moulted feathering. Most marked is the loss of the bluish grey over the rump and upper tail-coverts. Many museum skins are now both foxed and affected by subtle grease staining.

Roberts (1935) arranged the South African populations of the Red-eyed Dove in two subspecies on mensural characters, recognising a widely distributed race, *S. s. australis* Roberts 1932: Sekororo, Leydsdorp, eastern Transvaal, and a far western representative based on a singleton with a wing of 212 mm (*S. s. maxima* Roberts 1932: Toten-Maun road, northwestern Botswana). In proposing *maxima* Roberts appears to have been unduly influenced by incorrect wing-length data provided by Bocage in the case of the Angolan population (see Traylor 1960). Peters (1937) merged *australis* with the nominate subspecies, but recognised *maxima* as "known only from the type locality". Both *australis* and *maxima* were treated as synonymous with *S. s. semitorquata* in my *Catalogue* (Clancey 1965) and in the *S.A.O.S. Check List of the Birds of South Africa* (1969) pending a reappraisal of their status.

Roberts stated in 1932 that eastern southern African birds were sufficiently larger than topotypical *semitorquata* from Ethiopia as to warrant segregation under the name *S. s. australis*. In his later exposé (Roberts 1935) he gives the wings of southern African birds (both ♂♂ and ♀♀) as ranging from 183–204 mm. My own measurements for southern African specimens (from Rhodesia and Moçambique, south to the Cape) are: ♂♂ 185–201, ♀♀ 181·5–203 mm. Ethiopian birds are not subspecifically different in size from those of southern Africa, averaging only slightly smaller, the wings of ♂♂ being 180–195·5, ♀♀ 176–186·5 mm (Table 1). On the basis of the criterion laid down in the original diagnosis, *australis* cannot be maintained by wing-length as discrete from *semitorquata*. However, my series shows that the relatively stable populations present over the plateau of Rhodesia and in extreme eastern Botswana, the Transvaal, Moçambique south of the Limpopo R. (with single examples of *S. s. semitorquata* cropping up in the littoral populations present as far south as Durban and the Transkei), Swaziland, the Orange Free State, the lowlands of Lesotho, Natal and Zululand, and the Cape (mainly in the east and south, locally west to the Berg R.) differ sufficiently in various colour characters to justify their recognition as a subspecies, for which Roberts' *S. s. australis* can be employed.

S. s. australis as here defined is seen as being paler than *S. s. semitorquata*, in this respect resembling *S. s. minor* of southern Somalia and the coast lands of Kenya and northeastern Tanzania. Compared with *semitorquata*, *australis* is whiter over the forehead and face, the hind and lateral surfaces of the head and neck are paler vinaceous, the rest of the dorsum is distinctly lighter and greyer in newly moulted condition (about the greyish Drab of Ridgway (1912) (pl. xlvi), as against Olive-Brown (pl. xl)), and the rump and upper tail-coverts are lighter and bluer, less leaden, grey. Ventrally, the chin and throat are whiter, and the lower fore-throat, breast and sides are more lavender, less markedly vinaceous or vinous pink (close to Light Vinaceous Drab (pl. xlv), as against Brownish Drab), while the grey of the abdomen, flanks, crissum and under tail-coverts is again markedly paler. In the wings, the general facies is paler with more extensively distributed and lighter blue-grey over the lesser, median and secondary coverts and tertials, while the axillars and under wing-coverts are less blackish slate.

Viewed in series, paler general colouration, whiter chin and upper fore-throat, paler grey under tail-coverts, and more extensively distributed grey in the wings differentiate *australis* from *semitorquata*. Its range is as defined above.

Nominate *S. semitorquata* replaces *australis* in Moçambique from north of the Limpopo R. and from the Zambesi R. valley of Rhodesia, northern

Botswana in the Okavango Swamp region and the Caprivi Strip northwards. As noted above, the influence of this dark race is evident as far south as Durban, Natal, and the humid coastal region of the Transkei (Pondoland).

In placing the Botswana and Caprivi element with nominate *semitorquata* I have given careful consideration to the probable validity of *S. s. maxima*, named on a single skin procured during the course of the Vernay-Lang Kalahari Expedition of 1930. Table 1 shows that this population ranges much longer in wing-length than any other, as first demonstrated by Roberts and confirmed in the main by Irwin & Benson (1967). While the wing-lengths of 196–210 for ♂♂ and 193–203 mm for ♀♀ of the "*maxima*" population show a considerable overlap with many neighbouring and even with distant populations, especially those of *S. s. australis*, the means are significantly greater than those of any other population of the species (♂♂ 202·0, ♀♀ 195·5 mm). Skins with wings in excess of 198 mm from beyond what appear to be the limits of *maxima* are all from immediately contiguous regions such as central Angola, Zambia and southeastern Zaire. The geographical sector occupied by *maxima* contains other large-sized avian subspecies, and the Red-eyed Dove appears simply to be following a similar trend for reasons not yet obvious.

TABLE 1

The wing-length (mm) in selected populations of the Red-eyed Dove *Streptopelia semitorquata* arranged in a south-north sequence.

Population	n	Range	mean	S.D.	S.E.
		S. s. australis			
E. Cape & Natal	10 ♂♂	186·5–201	192·6	4·22	1·34
	12 ♀♀	181·5–195	185·6	4·39	1·27
S. Moçambique & E. Transvaal	7 ♂♂	191–199	193·2	2·98	1·12
	4 ♀♀	187–191	189·2	2·06	0·52
Transvaal (except E. lowlands)	16 ♂♂	185–200	193·1	4·54	1·14
	12 ♀♀	187·5–203	192·0	4·15	1·20
Rhodesia	9 ♂♂	186–199	190·6	3·77	1·26
	6 ♀♀	184–197	189·1	4·52	1·84
		S. s. semitorquata			
N.W. Rhodesia, Caprivi, N. Botswana, etc. "*maxima*"	11 ♂♂	196–210	202·0	3·93	1·18
	8 ♀♀	193–203	195·5	3·13	1·11
Zambia	5 ♂♂	189–199	192·0	4·06	1·81
	3 ♀♀	186–195	191·5	—	—
S.E. Zaire (mainly *ex* Verheyen 1953)	20 ♂♂	182–198	190·9	4·07	0·91
	10 ♀♀	180–196	186·1	4·86	1·54
Angola (*ex* Traylor)	17 ♂♂	180–200	192·0	—	—
	8 ♀♀	177–194	186·0	—	—
Malawi (*ex* Irwin & Benson)	10 ♂♂	179–192	183·0	—	—
	6 ♀♀	173–193	182·7	—	—
Tanzania & Kenya	14 ♂♂	178–191	182·2	3·86	1·03
	12 ♀♀	172–186	176·6	4·23	1·22
Ethiopia (mainly *ex* Friedmann)	11 ♂♂	180–195·5	188·7	4·52	1·36
	11 ♀♀	176–186·5	181·4	3·29	0·99

It is worthy of note that the population named *maxima* in the first instance is deeply coloured, resembling in this regard nominate *semitorquata*, in contradistinction to the populations occurring further south.

Statistically, *maxima* just fails to attain the critical (75%) limit for the recognition of mensural subspecies (Amadon 1949). Compared with Ethiopian specimens (topotypical of *S. s. semitorquata*), using a student's t-test, males of *maxima* have a value of 7·38 and females 9·14, in both instances P being far below ·001: showing that males do not meet Amadon's requirements for formal subspecific recognition, whereas females do, though their standard ranges indicate too much overlap to justify recognition of "*maxima*" on the basis of large size in the female alone. The prudent course of action in the present case appears to be to merge *S. s. maxima* with *S. s. semitorquata*, in so doing recognising only *semitorquata* and *australis* from the South African Sub-Region.

With the recognition of a southern African race of the Red-eyed Dove, the species is now comprised of three subspecies: *S. s. semitorquata*, *S. s. minor* and *S. s. australis*. The present nominate subspecies may be divisible into western and eastern elements along the lines originally laid down by Grant, as it is noted that *S. s. erythrophrys* is admitted by Mackworth-Praed & Grant (1952). The races and their synonyms will now stand as follows:

(a) *Streptopelia semitorquata semitorquata* (Rüppell), 1837. *Synonyms: Turtur erythrophrys* Swainson, 1837, *Turtur shelleyi* Salvadori, 1893, *Turtur semitorquatus intermedius* Erlanger, 1905, *Streptopelia semitorquata elgonensis* Granvik, 1923, *Streptopelia semitorquata maxima* Roberts, 1932;

(b) *Streptopelia semitorquata minor* (Erlanger), 1905;

(c) *Streptopelia semitorquata australis* Roberts, 1932.

I am grateful to Dr. A. C. Kemp of the Transvaal Museum, Pretoria and Mr. M. P. Stuart Irwin, National Museum of Rhodesia, Bulawayo, for the loan of additional specimens.

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Sympatric *Cisticola* spp. and the competition exclusion principle

by W. R. J. Dean

Received 20 December 1975

Although the grassland warblers of Africa, *Cisticola* spp. are morphologically very similar, they differ in choice of habitat in most cases. However, in the Transvaal, South Africa, five species of *Cisticola* occur in open grassland (Bankenveld, or *Cymbopogon-Themeda Veld*—Acocks 1953). Although they can be found together, three of the species have distinct habitat preferences; *Cisticola juncidis* occurs in moist grassland, *C. brunnescens* in short moist grassland, and *C. aridula* in dry grassland. The remaining two, *C. ayresii* and *C. textrix* occur in short dry grassland, and do not have obvious differences in habitat preference. Further, apart from distinctive displays of the breeding males, they are virtually impossible to distinguish in the field. These two species possibly represent an exception to the ecological principle of competitive exclusion.

Measurements of culmen, wing and tarsus of museum specimens of *C. ayresii* and *C. textrix* were obtained for birds from the area of sympatry in the Transvaal and from areas of allopatry. The measurements were tested with a Students "t" test to show whether differences between the species and between sub-species were statistically significant, with the following results:

(a) Males of *C. textrix* are larger than males of *C. ayresii* in an area of sympatry (Table 1). The differences are consistent but never more than 12%.

TABLE 1

Differences in culmen, wing and tarsus measurements (mm) of *C. textrix major* and *C. ayresii.*

		C. t. major				*C. ayresii*				
		mean		S.D.	n	mean		S.D.	n	Difference
Males	Culmen	12·6	±	0·58	24	11·1	±	0·47	15	P<·001
	Wing	54·0	±	1·49	26	49·1	±	1·46	15	P<·001
	Tarsus	20·6	±	0·97	22	18·1	±	1·0	15	P<·001
Females	Culmen	12·2	±	0·65	22	11·4	±	0·67	16	P<·001
	Wing	49·6	±	1·18	21	46·5	±	2·1	16	P<·001
	Tarsus	18·9	±	0·98	18	17·1	±	0·8	16	P<·001

Male *C. ayresii* tested against female *C. textrix major:* Culmen P<·001, Wing not significant, Tarsus P<·02.

(b) *C. textrix major* of the Transvaal is generally larger, statistically so in the case of wing measurements, than *C. t. textrix* of the Cape province (Table 2), but there is no significant difference in the culmen and wing sizes of *C. ayresii* from different parts of Southern Africa (Table 3).

TABLE 2

Differences in culmen, wing and tarsus measurements (mm) of *C. textrix textrix* tested against *C. textrix major*.

	Males				Females			
	mean	S.D.	n	Difference	mean	S.D.	n	Difference
Culmen	12·1	± 0·66	12	P<·02	11·7	± 0·66	9	n.s.
Wing	51·4	± 2·2	13	P<·001	47·0	± 1·58	9	P<·001
Tarsus	20·2	± 1·0	7	n.s.	19·1	± 1·02	6	n.s.

n.s. = not significant

TABLE 3

Differences in culmen and wing measurements of *C. ayresii* collected in Rhodesia, Natal and the eastern Cape.

	Culmen						Wings					
	Males			Females			Males			Females		
	mean	S.D.	n	mean	S.D.	n	mean	S.D.	n	mean	S.D.	n
Rhodesia	11·3	±0·59	33	11·2	±0·60	19	49·3	±1·9	33	46·6	±1·0	19
Natal	11·5	±0·44	8				49·4	±0·8	8			
E. Cape	11·7	±0·68	26	11·3	±0·51	15	49·3	±1·5	26	44·6	±2·1	15
Total including Transvaal	11·4	±0·53	82	11·3	±0·51	50	49·2	±1·4	82	45·9	±1·7	50

These mensural differences neither support nor give exception to the competitive exclusion principle, but the premises that morphological measurements reflect the ecology of a species must be accepted if inferences about competitive exclusion are to be made from such measurements. The latter may reflect gross differences in ecology, but are clumsy and do not show up subtle differences in structure, and indeed may mask differences between similar species. Further, there are no standards defining the degree of mensural difference which is sufficient to indicate lack of competition.

The exclusion principle depends, at least partly, upon competition between species for limited resources. The limiting factors operating upon *Cisticolas* in the Transvaal grasslands may occur at times other than when the two species are observed together in the breeding season. In open grassland where the food supply may be super-abundant in the breeding season, neither food nor space may be a limiting factor then, though possibly so at another stage in the life cycle. Alternatively, the populations of the two species of *Cisticola* may somehow be being maintained at a low level so that they do not come into competition, as for example in sessile marine invertebrates (Paine 1966) and for ungulate mammals (Wagner 1969).

ACKNOWLEDGEMENTS

For the loan of specimens and the opportunity to measure *Cisticolas*, I am grateful to the Directors of the following institutions: National Museums of Rhodesia, Salisbury and Bulawayo; Transvaal Museum; Durban Museum; East London Museum and the South African Museum. Dr. S. M. Hirst provided advice on statistical tests. I thank C. J. Vernon and I. A. W. Macdonald for advice and criticism of a draft of this note.

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IN BRIEF

(a) A Ringed Woodpecker *Celeus torquatus* in Colombia

The Ringed Woodpecker *Celeus torquatus* has been recorded widely in lowland tropical South America east of the Andes but curiously from only one locality in Colombia (Meyer de Schauensee 1964, 1966): two females and a male at río Guapaya at the eastern base of the Sierra Macarena, Meta (Blake 1962).

On 19 July 1975, we found a female *Celeus torquatus* about six km north of Leticia, Amazonas, Colombia in mature "tierra firma" forest about two km from "La Carretera". It was foraging 30 m above ground near the canopy on a main trunk of a living tree in an area where there had been some tree-felling in the past and 200 m from a man-made clearing in the forest. The bird was studied with a 20-power telescope for ten minutes by ourselves and eight other ornithologists. Several photographs were obtained by the second author; although not of good quality due to low light levels, the diagnostic features of black collar around the neck, the mainly chestnut tail, the tawny unmarked belly, the light rufous, crested head, the yellow bill, and the chestnut wings with dark spotting can all be discerned in the photographs, distinguishing *C. torquatus* from all other *Celeus* species. The lack of barring on the belly indicates that this individual belonged to the western race *occidentalis*.

Although *C. torquatus* is widely recorded east of the Andes, specimens are few in number and it is apparently rare throughout its range, Haverschmidt (1968) for instance reporting that it is one of the rarest woodpeckers in Surinam. Thus perhaps the gaps in the presently known range are a function of the general rarity of the species rather than indicative of a truly disjunctive distribution.

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6 December 1975

J. V. Remsen, Jr.
John S. Luther
Don Roberson

(b) *Halcyon "ruficollaris"*

In *Bull. Br. Orn. Cl.* 94 (1974): 147 I proposed the name *Halcyon ruficollaris* for a kingfisher from Mangaia, southern Cook Islands. I am grateful to Murray D. Bruce for pointing out that this name is a homonym of *Alcyone ruficollaris* Bankier 1841, *Ann. & Mag. Nat. Hist.* 6: 394, from Port Essington, Northern Territory, Australia. The latter is now regarded as a subspecies or synonym of *Halcyon sancta* Vigors & Horsfield. The following replacement name is therefore proposed for the Mangaia kingfisher:

Halcyon mangaia nom. nov.

16 December 1975

D. T. Holyoak

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Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin*, unless a departure is explained and justified. Photographic illustrations although welcome can only be accepted if the contributor is willing to pay for their reproduction.

An author wishing to introduce a new name or describe a new form should append *nom.*, *gen.*, *sp.* or *subsp. nov.*, as appropriate, and set out the supporting evidence under the headings "Description", "Distribution", "Type", "Measurements of Type" and "Material examined", plus any others needed.

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Bulletin of the

British Ornithologists' Club

Edited by
Dr. J. F. MONK

Volume 96 No. 2 June 1976

FORTHCOMING MEETINGS

Tuesday, 20 July 1976 at 6.30 p.m. for 7 p.m. at the Goat Tavern, 3 Stafford Street, London, W.1. (between Old Bond Street and Dover Street, near Green Park tube station). Mr. Robert Gillmor will speak on Bird Illustration. Cheques for the cost of dinner (£2·25 a head) must be sent to the Hon. Secretary before the meeting.

Tuesday, 21 September 1976 at 6.30 p.m. for 7 p.m. at the Senior Common Room, South Side, Imperial College, South Kensington (entrance Prince's Gardens, S.W.7, off Exhibition Road and N. of Victoria and Albert Museum). Dr. M. P. Harris will speak on St. Kilda Puffins. Cheques for the cost of dinner (£2·95 a head) must be sent to the Hon. Secretary before the meeting.

Tuesday, 16 November 1976. Dr. H. N. Southern will speak on the Tawny Owl at the Senior Common Room, South Side, Imperial College.

Tuesday, 18 January 1977. Dr. Peter Ward will speak on Palaearctic migrants in Nigeria.

Tuesday, 15 March 1977. Mr. J. M. Forshaw will speak on the ecology of parrots in Australia with emphasis on adaptations to changing environments.

COMMITTEE

J. H. Elgood (*Chairman*)
R. E. F. Peal (*Hon. Secretary*)
Dr. J. F. Monk (*Editor*)
Dr. C. J. O. Harrison
Dr. G. Beven

P. Hogg (*Vice-Chairman*)
M. St. J. Sugg (*Hon. Treasurer*)
Mrs. J. D. Bradley
C. E. Wheeler

Bulletin of the BRITISH ORNITHOLOGISTS' CLUB

Vol. 96 No. 2 Published: 18 June 1976

The six hundred and ninety-ninth meeting of the Club was held at the Goat Tavern, 3 Stafford Street, London, W.1 at 7 p.m. on Tuesday, 9 March 1976.

Chairman: Mr. P. Hogg: present 10 members and 2 guests.

Dr. C. J. O. Harrison spoke on eggs, drawing attention to a number of questions concerning birds' eggs to which no satisfactory solutions had yet been discovered. He illustrated his talk with examples of various types of egg.

The seven hundredth meeting of the Club was held at Imperial College, London, S.W.7 at 6.45 p.m. on Tuesday 4 May, 1976.

Chairman: Professor J. H. Elgood, M.A., present 27 members and 16 guests.

There was a symposium on African birds, opened by Mrs. B. P. Hall, who spoke on the remarkable richness of species in African thorn-bush scrub, contrasting it with the fewer species in similar habitat in Australia. She pointed out the very great degree of specialization of species in this (and other) habitats in Africa.

Sir Hugh Elliott, Bt., O.B.E., followed and explained that recent observations of Palaearctic migrants in southern Kenya (*Ibis* 118: 78–105) had opened a new viewpoint on migration in Africa. He compared the birds reported in that paper with those he had found in a study area to the west of Kilimanjaro 35 to 40 years ago.

Mr. C. C. H. Elliott then spoke on the migration of quelea that breed around Fort Lamy in Chad and the reduction of the damage they do to crops in irrigated farmland obtained by advancing the harvesting of these crops to a time before the birds arrived.

Mr. C. W. Benson, O.B.E., discussed the avifauna of Madagascar. He supported the view that the Malagasy area forms a separate zoogeographical region, citing the presence of a number of species in Madagascar which are Asiatic or with Asiatic affinities and the surprisingly small association with the birds of the African continent. He also spoke on the degree of speciation in Madagascar.

The addresses gave rise to interesting and wide-ranging discussions.

ANNUAL GENERAL MEETING

The eighty-fourth Annual General Meeting of the British Ornithologists' Club was held at Imperial College, London, S.W.7 on Tuesday, 4 May 1976 at 5.45 p.m. with Professor J. H. Elgood, M.A., in the chair. Eleven members were present.

The minutes of the eighty-third Annual General Meeting (*Bull. Brit. Orn. Cl.* 95: 89–90) were approved and signed.

Presenting the Report of the Committee for 1975, the Hon. Secretary stated that the comparatively small numbers attending meetings were a cause of continuing difficulty in obtaining a reasonably priced dinner: the Goat Tavern at a little over £2 per head was an exception in this respect but its capacity was not large, particularly if slides were to be shown. Prices could not be fixed far ahead because of inflation and at no place where the Club now met would the caterers undertake collection from members of the charge for dinner, which had now to be done by the Club.

The Hon. Treasurer presented the Accounts for 1975. The larger receipts from subscriptions has resulted from the increased rates of subscription that came into effect for that year. Owing to changes in deeds of covenant, there had been no claim for recovery of income tax made in the last year but he had since rendered claims covering two years for a total of £185, of which £88 would have been receivable in 1975. He expressed the Club's thanks to Mr. E. W. Mudge for his donation of £51. Membership continued to increase and there had already been 20 new members or *Bulletin* subscribers in the current year.

The Chairman thanked the Hon. Treasurer for the considerable amount of work he continued to do for the Club, despite his move away from the Home Counties to Somerset last year. On the Chairman's proposal, the Report of the Committee and Accounts for 1975 were received and adopted unanimously.

There being no nominations additional to those of the Committee, the following were declared elected:—

Hon. Treasurer: Mr. M. St. J. Sugg, M.A. (re-elected)
Hon. Secretary: Mr. R. E. F. Peal (re-elected)
Committee: Dr. G. Beven, M.D., *vice* Mr. J. H. R. Boswall, who retired by rotation.

The Editor reported that the average interval between receipt of an acceptable paper and its publication in the *Bulletin* was about six months, which compared very favourably with most other ornithological journals of a similar standing. Sir Hugh Elliott reported that orders for back-numbers were keeping up fairly well. Two numbers of Vol. 89, of which stocks had been exhausted, were reprinted in 1975.

The meeting closed at 6.10 p.m.

INCOME AND EXPENDITURE ACCOUNT for the year ended 31st DECEMBER, 1975

EXPENDITURE

1974 £		£·p	£·p
1,434	Cost of Publication and Distribution of *Bulletin*		1,749·85
54	Notices, etc., for Meetings		50·33
	Audit Fees:—		
	1974 (Additional)	15·20	
22	1975	32·40	
			47·60
72	Lecture Expenses		27·76
141	Miscellaneous Expenditure and Postage		67·12
10	Projector Depreciation		10·00
435	*Transfer to General Fund*		280·30
£2,168			£2,232·96

INCOME

1974 £	1974 £		£·p	£·p
		SUBSCRIPTIONS:		
	693	Members and Associates	885·33	
	511	Subscribers	657·57	
1,204				1,542·90
478		Sales of *Bulletin* for previous years ..		256·34
123		Income Tax recovered under Deeds of Covenant		17·66
		INVESTMENT AND DEPOSIT INCOME:		
	68	General Fund	92·30	
	49	Trust Fund	48·98	
117				141·28
246		Rent less Expenses—Property "Clovelly", Tring		223·40
—		Donations		51·38
£2,168				£2,232·96

BALANCE SHEET, 31st DECEMBER 1975

1974 £	£		£·p	£·p
		GENERAL FUND		
	843	As at 31st December, 1974	1,277·75	
1,278	435	*Add:* Transfer from Income and Expenditure Account	280·30	1,558·05
		BULLETIN FUND		
110		Donations from Members		110·15
55		CREDITOR		32·40
1,443				1,700·60
		TRUST FUND (The Capital of this Fund may not be used—the Income from it is General Revenue)		
1,000		F. J. F. Barrington Legacy		1,000·00
£2,443				£2,700·60

1974 £	£		£·p	£·p
		GENERAL FUND INVESTMENT		
		£100 8½% Treasury Loan, 1980/82, at Cost	100·00	
		Less: Reserve	20·00	
80		(£80) Market Value £86		80·00
		PROJECTOR AND SCREEN		
	100	Addition at Cost	100·00	
60	40	*Less:* Depreciation	50·00	50·00
1		STOCK OF *Bulletin*—Nominal Value No value has been included for the stock of the Scientific Index ..		1·00
—		DEBTORS		—
		CASH AT BANK—Current Account ..	183·93	
		—Deposit Account ..	1,385·67	
1,302				1,569·60
1,443				1,700·60
		TRUST FUND INVESTMENT		
1,000		£1,399·55 3½% War Stock .. .. (£287) Market Value £343		1,000·00
£2,443				£2,700·60

J. H. ELGOOD, *Chairman*
M. ST. J. SUGG, *Hon. Treasurer*

We have prepared the above Balance Sheet and annexed Income and Expenditure Account from the books and records of the Club and certify them to be in accordance therewith.

72 HENDFORD, YEOVIL, SOMERSET
2nd March, 1976

GEE, ROBERTS & CO.,
Accountants.

Remarks on the validity of *Carpodacus roseus sachalinensis* Portenko

by M. Ralph Browning

Received 15 December 1975

Pallas' Rose Finch *Carpodacus roseus* (Pallas), 1776, (type locality—Uda and Selenga rivers, Transbaicalia) of south-central and southeastern Siberia is rare in collections and little has been written about it. The species occurs in summer as far north as the mountains of the middle fork of the Nizhnyaya Tunguska River, northeast to Yakutia, south to the Sayan Mountains near Lake Baikal, the Stanovoi Mountains in Amurland, and Sakhalin Island. In winter it is found south to western Siberia, northern China, Korea, and Japan (Beme 1954). Details concerning its breeding behaviour remain unknown.

Although the species is now considered monomorphic (Paynter 1968), the population of Sakhalin Island and the Okhotsk littoral has been named *C. r. sachalinensis* by Portenko (1960), on the basis of specimens collected outside the breeding months. A more detailed description of the race was published subsequently (Portenko 1962). The holotype of *sachalinensis* (ZIAS 61935), which I have examined, is an adult male collected on the shore of Nyisku Bay (52° N), eastern Sakhalin Island, on 29 August 1881. Portenko described the adult males of *sachalinensis* as darker than nominate *roseus;* first year males and adult females of *sachalinensis* were also said to be darker and to have more white on the belly with the streaks of the underparts broader and darker. The wing length (chord?) was said to be shorter than in nominate *roseus*, the mean for adult males being 90·7 mm (n=55) for the nominate race against 86·8 mm (n=3) for *sachalinensis*; whereas for females and immatures the means were said to be smaller than those of adult males and smaller in *sachalinensis*.

Paynter (1968), even though he had not seen specimens, placed *sachalinensis* in synonymy with *C. roseus*, considering that the published characters of *sachalinensis* were insufficient to justify its recognition. However, I recently discovered several noticeably dark individuals among specimens of *C. roseus* in the U.S. National Museum of Natural History, suggesting that a more thorough investigation of Portenko's race was warranted.

Specimens were borrowed from eleven museums to compliment the series in the National Museum and a total of 129 specimens of *C. roseus*, including the holotype and part of the type series of *C. r. sachalinensis*, were examined, all of which were collected between late August and April, or outside the probable breeding period of the species. Examination confirms the fact that there is a dark population. Unfortunately, the holotype of *sachalinensis* does not appear to represent birds from the dark population, so that the name must be considered a synonym of *C. roseus*.

The holotype of *sachalinensis* was compared with 45 other adult males of *C. roseus*. Although it is in fairly heavy moult (see later) I found that the back, rump, and underparts are similar in colour to specimens of nominate *roseus* collected in autumn, winter and spring. Critical comparison of individual body feathers of the specimens revealed that the intensity of the red coloration does not vary seasonally. Fourteen of the 45 adult males are noticeably darker than nominate *roseus* and the holotype of *sachalinensis* in the colour of the rump, crown, and underparts. The edges of the secondaries are white in the dark specimens, whereas in nominate *roseus* and the holotype of *sachalinensis* these edges are brownish. The paleness and the brownish edges of the

TABLE 1

Measurements of the races of *Carpodacus roseus*. All bill measurements are from the anterior edge of the nostril.

		Adult males			*Females*			*Immature males*		
	Colour	n	Range	Mean ± S.D.	n	Range	Mean ± S.D.	n	Range	Mean ± S.D.
Wing	pale	18	84·5–100·3	89·6±3·73	14	83·1–91·4	86·7±2·63	23	82·0–89·7	86·8±1·98
	dark	13	86·0–92·0	89·2±1·75	11	81·8–86·9	85·1±1·52	15	85·2–94·7	88·2±2·75
Tail	pale	18	64·0–71·3	68·3±2·50	9	60·0–69·0	63·7±2·81	23	59·1–71·5	66·1±2·78
	dark	12	64·5–70·7	67·9±2·31	11	59·8–67·9	64·5±2·66	15	63·6–70·3	67·0±2·00
Tarsus	pale	15	18·7–21·5	19·9±0·85	9	18·2–21·4	19·7±0·99	16	19·4–21·3	20·3±0·56
	dark	12	19·0–21·6	20·0±0·70	11	18·8–20·8	19·8±0·67	14	19·5–20·9	20·3±0·49
Bill width	pale	18	6·3– 8·3	6·8±0·44	9	6·0– 6·8	6·5±0·26	18	6·3– 7·1	6·6±0·19
	dark	12	6·5– 7·4	6·9±0·27	11	6·3– 7·3	7·0±0·62	14	6·3– 6·8	6·6±0·14
Bill depth	pale	22	7·5– 8·5	8·0±1·10	9	7·5– 8·1	7·7±0·20	15	7·6– 8·5	8·0±0·28
	dark	11	7·4– 8·4	8·2±0·45	11	7·5– 8·5	8·0±0·80	13	7·9– 8·4	8·0±0·90
Culmen	pale	18	7·8– 9·9	8·8±0·47	14	8·4–11·1	9·4±0·88	17	8·1– 9·6	8·7±0·47
	dark	12	8·0– 9·1	8·7±0·39	11	8·6– 9·5	9·0±0·28	15	8·0– 9·0	8·4±0·31

Note: Measurements (mm) of the type of *sachalinensis* were:—wing 89·0, tail 62·0, tarsus 20·4, bill width 6·6, bill depth 7·8 and culmen 8·4.

secondaries of the holotype of *sachalinensis* are well within the range of individual variation of specimens from western Siberia, which, according to Portenko are nominate *roseus*. Contrary to Portenko, I found no significant differences in wing chord between pale and dark specimens (Table 1).

The pallor of the holotype of *sachalinensis* might be attributed to the age of the skin, but the possibility of fading was carefully considered and was rejected for the following reasons. There are specimens from western Siberia of the same skin age that are darker than the holotype of *sachalinensis*. Also, there are specimens from the same series of nominate *roseus* that are paler than the holotype of *sachalinensis* although they were collected more recently. In the series of 14 dark males, the darkest specimens are not those most recently collected.

Portenko reported that "*sachalinensis*" breeds on Sakhalin Island on the basis of nests and eggs collected by Gizenko (1955), but did not see them himself. They have been examined by Vorobiev (1973), who identified them as belonging to *Uragus sibiricus*, the Long-tailed Rose Finch. Portenko (1962) suggested that "*sachalinensis*" also breeds on the Shantar Islands in the Gulf of Udsk. However, an adult male (ZIAS 61921), collected on Great Shantar Island on 28 April 1926, presumedly examined by Portenko, is labelled as nominate *roseus* and is similar to other specimens of the pale population.

Since the available specimens represent either transients or winter visitors, the breeding range of the population represented by the dark specimens is unknown. Although probable, it is also uncertain that the dark specimens are a product of geographic variation. According to Dr. V. A. Nechaev (*fide* A. I. Ivanov *in litt.* to G. E. Watson) *C. roseus* may nest in the mountains of northern or central Sakhalin Island, and it is this population that possibly may have produced the dark specimens. This is further suggested by the fact that all the dark specimens collected as transients or winter visitors were from either Korea, Hokkaido, Japan, or Sakhalin Island.

Moult in *C. roseus* takes place in early fall. The holotype of "*sachalinensis*" is in fairly heavy moult. All its rectrices are in sheaths except the two central ones, which are new. Also in sheath are many upper tail coverts, back, neck, and breast feathers, tertials, and most of the secondaries. The inner seven primaries on both wings are new. Sheaths are visible at the base of the fourth and seventh inner primaries of both wings. The inner eighth primaries are about half grown. Both of the ninth and tenth primaries are old. An adult male, however, collected in late September has all new flight feathers. An immature male collected in September and one immature male and three females taken in October have already completed moult in the flight feathers. Two specimens collected near Seoul, Korea, are unusual. One of these, an immature male collected in December, has all new rectrices which are about three-quarters grown except for the left rectrices numbers 3, 5 and 6. In the second and unsexed specimen, an immature or possibly an adult female, all the rectrices are new and half grown. These last two specimens are probably replacing feathers lost during some injury. None of the other specimens in the series of *C. roseus* examined in this study were in moult.

ACKNOWLEDGEMENTS

I express sincere gratitude for the loan of comparative specimens to the authorities of the Museum National d'Histoire Naturelle (Paris), Natur-Museum und Forschungsinstitut (Frankfurt), Staatliches Museum fur Tierkunde (Dresden), Museum Heineanum (Halberstadt), Universitat Hamburg, Universitetets Zoologiske Museum (Copenhagen), British Museum (Natural History, Tring), Royal Scottish Museum (Edinburgh), Museum of Vertebrate Zoology (Berkeley, California), and the California Academy of Sciences (San

Francisco). I wish especially to thank Prof. A. I. Ivanov of the Zoological Institute of the Academy of Sciences (ZIAS) in Leningrad for the loan of the holotype and other specimens used by Portenko, and to thank him and N. Litvinenko of the Far Eastern Science Centre at Vladivostok, E. G. F. Sauer, F. W. Merkel, and C. W. Benson for providing information about the species and locating specimens. R. C. Banks arranged for the loan of specimens in the United States. I am grateful to G. E. Watson who arranged for the loan of the other specimens and queried many more museums about specimens on my behalf as well as reading a late version of the manuscript; and to S. Olson and J. Farrand, Jr., who read an earlier draft and for their encouragement and many useful suggestions.

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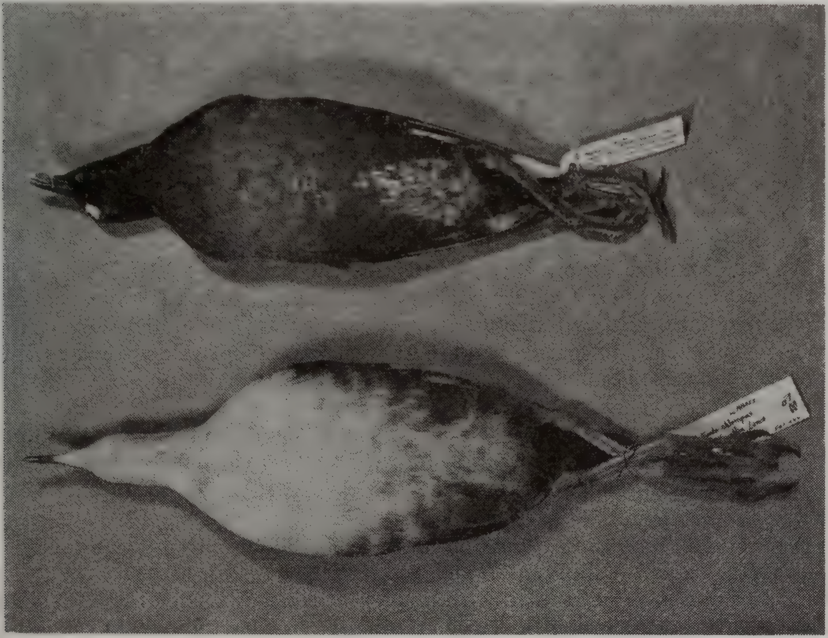
On a variety of the Moorhen *Gallinula chloropus* from Northern England

by Eric Gorton

Received 10 December 1975

A male example of the Moorhen *Gallinula chloropus* obtained at Bolton, Lancashire, which I examined first in the flesh, presented a number of remarkably symmetrical aberrant features of plumage. The legs and bill also



Aberrant Moorhen (below) *Gallinula chloropus* from Northen England were particularly noticeable for their variation from the normal colouring. The specimen was extremely fat. It is now in the ornithological collections of the Bolton Museum, presented by Mr. P. Holden on 29 October 1973.

The underparts differ markedly from the normal form. The flanks and thighs are of the normal leaden grey colour with white flashes at the side, but the chin, throat, neck, breast and belly are white with a grey tone on the belly and some slight grey edging to the feathers of the breast. However, the most remarkable feature is the absence of white on the under tail coverts, which are uniformly blackish. What is generally taken as the most important identification and display character of the Moorhen is thus entirely lacking.

The upper parts also differ markedly from normal. The ground colour is a fairly neutral deep grey with only a slight tint of the olive brown of the back characteristic of the usual plumage. At each side of the mantle is a line of whitish feathers, forming an indistinct rough V, while the tertials are also whitish with a pale brown suffusion and dark grey edges and shaft lines.

A striking feature of the fresh specimen was the abnormal colouring of the soft parts. Instead of greenish, the legs were of a fairly bright yellow (4A6-7 in Kornerup & Wanscher, "*Methuen Handbook of Colour*" 1963), the toes being of the same colour with dusky joints and claws. The bill was yellow at the base (4A6) with a tinge of red in the middle (8B7), while the tip was of a warm olive colour (3C7). There was no evidence of a red "garter" or of the normal red on the "shield" of the bill. The shield itself is smaller than usual.

In view of the present interest in the bearing of aberrant examples on phylogenetics, the similarity of certain aspects of the present specimen to the immature plumage of the Coot *Fulica atra* and the adult of the White-breasted Waterhen *Amaurornis phoenicurus* should be noted.

Address: Museum and Art Gallery, Civic Centre, Bolton, Lancs.

Breeding records of *Crex egregia, Myrmecocichla nigra* and *Cichladusa ruficauda* from Angola.

by W. R. J. Dean

Received 20 December 1975

In view of the paucity of breeding data for the birds of Angola, the following breeding records are of interest.

Crex egregia African Crake

An unidentified crake, accompanied by two downy young, was seen crossing the road near Quihita, 15° 24′ S, 14° 00′ E, on 2 May 1973, where the habitat was mostly tall, dry *Hyparrhenia* spp. grass c. 2 m high.One of the young was examined in the hand, and was subsequently identified as this species by Manfred Schmitt (pers. comm.) from the description I noted down at the time.

This record extends the known distribution of the African Crake in Angola westward of previously known localities (Traylor 1963), and appears to be the first breeding record in Angola.

Myrmecocichla nigra Black Chat

A nest containing three young about two days old was found just south of Guilherme Capelo, Cabinda, 5° 13′ S, 12° 10′ E, on 21 August 1972. The nest was a cup of coarse grass lined with rootlets and was in a chamber at the end of a 30 cm tunnel sloping upwards at an angle of about 20° from the horizontal, in a sand bank.

On a journey by road from Carmona, 7° 36′ S, 15° 03′ E, to Mavoio, 6° 05′ S, 15° 02′ E, on 29 August 1973, several Black Chats were observed at nest holes in sand banks on the road verge. One such nest, at about 11 km south of Mavoio, contained two naked young in a cup of grass and rootlets, placed at the end of a horizontal tunnel 25 cm long.

A Black Chat was seen carrying nest material to a nest excavated in the roof of an Ant-bear *Orycteropus afer* burrow at Cangandala National Park, Malanje, (at approximately 9° 47′ S, 16° 41′ E), on 28 August 1972.

Traylor (1963) gives the breeding season of Black Chats in Angola as September to November, but evidently breeding in August may be regular.

Cichladusa ruficauda Rufous-tailed Morning Warbler

There are few breeding data of this common species. A pair were building the early stages of a nest on a small ledge in a limestone outcrop in the forest west of Carmona on 28 August 1973 (Dean 1974, Appendix II). Both birds used a series of perches as staging posts when covering the last 20 m from the source of the nest material (mud) to the nest.

Two eggs taken from a deserted nest near Luanda, 8° 48′ S, 13° 14′ E, on 12 May 1973 are pale greenish white, freckled with pinky marks, the markings heavier and tending towards blotches on the obtuse end of the egg. The eggs measure 23·7 × 16·2 and 24·1 × 16·5 mm. They were still fairly fresh. Chapin (1953) and Mackworth-Praed & Grant (1973) describe the eggs similarly, but give no measurements.

Traylor (1963) gives one record of *C. ruficauda* breeding in Angola—a nest and young in January. The Instituto de Investigacao Cientifica de Angola has one egg of this species collected on 8 December 1965. Four males in the I.I.C.A. collection examined by me had gonads enlarging in August, October and November. Evidently the breeding season is prolonged, perhaps even longer than the period October to April given by Chapin (1953) for the Congo.

I am grateful to the Peabody Museum of Natural History, Yale University, for the opportunity to make these notes.

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Observations on Pel's Fishing Owl *Scotopelia peli*

by L. H. Brown

Received 23 December 1975

Pel's Fishing Owl *Scotopelia peli* is a widespread, but apparently uncommon and local riverine species of lowland tropical Africa, extending from eastern Cape Province north to Ethiopia and west to Senegal. Since little has been written on this species, and since much published information seems highly misleading, this note summarises what has been learned of this owl in southwest Ethiopia in 1968–70 and in Botswana in 1971. The only other place in which I have ever come across this owl (not recorded by me in 30 years residence in Kenya) was on the Obe river in the Niger flood plains between Agenebode and Illushi on 24 Feb 1945. Ill with malaria, I sent out my Hausa syce Momo, with two cartridges, to collect Hartlaub's Duck *Pteronetta hartlaubii*. He returned with a Tiger Bittern *Tigriornis leucolopha* and Pel's Owl—as nice a right and left as any collector could have wished for. He had blown off the head of the owl completely at very close range; but its identity was confirmed by examining the rest of the body, notably by wing length.

S. W. ETHIOPIA 1968–1970. The sonorous hoot of Pel's Fishing Owl was first heard in 1968, but the bird was not seen. My brother, G. H. H. Brown, later confirmed that the call we had heard was of the owl, as one came and hooted in a tree close to his house in Omo Valley National Park in late 1968. In 1969, between 19 and 30 January, a pair of the owls was located just above the Park headquarters along the Mwi river; and safaris up river established that there was a pair about every 6–7 km of river. The Mwi river in this area in January is a clear stream flowing in a wide torrent bed of stones, grown with patches of *Sesbania* shrubs and tall reeds *Saccharum* sp. Along the permanent banks are patches of forest, principally Cat-claw Acacia *A. campylacantha*, but also huge fig trees *Ficus* (*mallatocarpa* ?) and broad leaved evergreens notably *Tamarindus indica*. These patches of forest were regular daytime haunts of the owls.

The owls were hard to locate by day but at night could be heard calling up and down river. The call is distinctive and quite unmistakable but bears little relationship to published descriptions. Mackworth-Praed & Grant (1952), describe it as "a sort of snoring, humming sound, not unlike that made at times by leopards; also a hoot rising to a loud screech, ending in a terrifying wail". Roberts (1972) is even more imaginative. Having described a "boo-hoo" and a crescendo staccato "kuu-ku-ku" (which bear some resemblance to calls described later), he states "at night this gives way to a weird screechy howl, which rises to a nerve-shattering crescendo, to peter out like the cry of a lost soul falling into a bottomless pit". It appears more likely that these calls refer to the notes of Verreaux's Eagle Owl *Bubo lacteus*, and perhaps the mewing of the Pearl-spotted Owlet *Glaucidium perlatum*. They certainly bear no resemblance whatever to the normal contact calls of Pel's Fishing Owl. This is a deep sonorous hoot, sometimes preceded and often followed by a low grunt "Hooommmmm-hut", the hoot being audible at much greater range (up to 3 km on a still night) than the grunt. The sexes call in different tones, one tenor, the other deeper and more sonorous; without certain knowledge it is assumed that the male has the higher-pitched voice. The owls along the Mwi seldom called before 22.00 hrs., and not often before midnight; they were most vociferous between 03.00 and 05.00 hrs. These normal contact calls were quite different from the duets heard later in Botswana.

Above the Omo Park headquarters at German Sefer, a pair ranged along the Mwi river for about 4 km at least. Their main daytime roost was about 1½ km above the headquarters in two broad-leaved forest trees, sometimes in a grove of huge fig trees close to this clump. Once one, probably the male, was found roosting in figs only ½ km above Park headquarters. When roosting, they allowed approach to within 10 m before flying and were very conservative, invariably being found in the same area even after being repeatedly disturbed. When disturbed by day they readily flew several hundred metres, and would perch on open branches of *Acacia tortilis* in full sunlight, without apparent discomfort. The owls were found in the same area again between 10 and 17 Feb 1970; but in March 1973 the forest trees which were their regular preferred roost had been lopped to hang up honey barrels, and they were nowehere to be found in the neighbourhood, nor were they heard. Apparently the disturbance of their roost made them move some distance.

Although stated by some authorities (e.g. Sparks & Soper 1970) to be largely diurnal, neither in Ethiopia nor in Botswana were they other than entirely nocturnal. They were never seen hunting by day, were normally not on the move before dark, and roosted by dawn. On two evenings, 18.15—18.30 hrs, one was seen perched on a dead fig tree above a pool near the roost, apparently having emerged to fish; but this was unusual. On most evenings, waiting till near dusk near the roost revealed no activity by the owls. As the valley of the Mwi river at that point was alive with buffalo, and as the river contained large crocodiles, observation was not continued after dark. The shallow pools of the river at this season were swarming with small *Barbus* and *Tilapia*, with some catfish *Clarias*; and the *Barbus* and *Tilapia* at least often spent minutes on the surface gulping air. The catfish may only have risen to the surface at night. Though it would thus have been easy to catch fish by day, the owls did not do so, though other fishing birds did.

Pel's Fishing Owl is apparently not adapted, or not so well adapted for silent flight as are typical mammal-eating nocturnal species. Vigorous wing-flapping, such as when leaving a perch, produces quite a loud sound. Presumably, therefore, the hearing ability of fish in the water is not such as to detect the approach of a hunting owl.

In Ethiopia, no evidence of breeding was detected in any month from January to March along the Mwi river. There are, in fact, no breeding records for Ethiopia, nor for East Africa (Urban & Brown 1970, East African Nat. Hist. Soc. nest record card scheme). Verreaux's Eagle Owl breeds in Ethiopia from January to April, and also in June and July; it also is largely a riverine species, heard in the same locality as Pel's Fishing Owl but feeding on different prey. Most large Ethiopian raptors breed in the main dry season October to April in north and northwest Ethiopia, but in southwest and southeast Ethiopia two rainfall peaks occur, with a less marked dry season June to September. No evidence was found by G. H. H. Brown either that Pel's Owl breeds in this period.

Although Pel's Owl is quite common along the Mwi river and also along the main stream of the Omo in the same area, it was neither seen nor heard along the Godare river and tributaries within tropical forest in Illubabor Province at 800 m in February 1969 (Brown & Urban 1970). It may therefore be an inhabitant of riverine strips of woodland in savannas rather than of forest itself.

BOTSWANA, JULY 1971. Smithers (1964) states that Pel's Owl is only recorded from Sepopa and Seronga (one of which localities may be Txaquie —"an island in a swamp"); but it is evidently quite widespread in the Okavango swamps as we also found traces of it (feathers) in the Moremi Game Reserve.

When I was camped at Txaquie Island, about 160 km up the Boro river channel from Maun, deep inside the Okavango river swamps, at least one, possibly two pairs of Pel's Fishing Owl frequented the immediate vicinity of the camp site. One apparently lived mainly on Buffalo Island across the channel to the north, another about 1 km downstream; however they could have been the same birds. On occasion the Buffalo Island pair came to Txaquie, and performed protracted vocal duets, apparently a form of courtship.

The duetting was unlike the normal contact calls described for southwest Ethiopia and also heard at night at Txaquie. It lasted from 10–15 minutes and might occur several times in one night. The first was heard at about 01.30 on 10 July, continued for about ten minutes, and was uttered from a dead stub three metres above the water of the river. Earlier, the owls had been heard contact calling at moonrise. They were not at first disturbed by torchlight, but later left when I rose to watch them; they could evidently see me easily. However, this pair duetted again in brilliant moonlight at about 22.30 on 12 July, on a dead tree in the middle of Txaquie Island, in full view of five observers, for at least 15 minutes. They were not disturbed by torchlight, but turned to look at the light, revealing a red tapetum in the eye. They were filmed by D. Plage, using a light-intensifying device, and only fell silent when their own calls were played back to them on a tape recorder. They were perched too close together above each other to be certain which individual uttered a particular sound, and there was little size difference; however, one, presumed to be the male, had a higher pitched voice than the other.

The duet begins with a series of low grunts "uh-uh-uhu", etc. which gradually work up to a crescendo, and it ends in a loud tenor hoot "Hooommm"; the other responds with a deeper, more sonorous "Hooommmm" followed by more grunts "uh-uhu-uh-uh", etc. Probably the bird initiating the duet is the male, with the tenor voice, the female responding. In torchlight we could see that the throat is inflated when uttering the sonorous "Hooommm". They took about five minutes of grunting to work up to the full duet, which then continued for about 15 minutes. They duetted again later in the night and also on 18 July and later nights, though never again so close or so easily seen. The duets were uttered mainly during the moonlight.

This behaviour is not unlike an uncommon duetting display of Verreaux's Eagle Owl (Brown 1965) in which the pair sit opposite one another grunting and jerking the body; however, it is not accompanied by any obvious body movements in Pel's Fishing Owl. Other large owls also duet, and in fact much calling by owls at night is duetting, in that male calls to female and is answered. Possibly such vigorous duetting may indicate the onset of the breeding season. Breeding is not recorded in Botswana (Smithers 1964); but in the Luangwa Valley, Zambia, it may occur in June (Benson & White 1957), which is early in the dry season and would support the likelihood that breeding might occur in August in Botswana. However, no additional information was obtained.

I was unable to locate the daytime roost of the Txaquie pair by searching likely patches of forest on Buffalo Island, as done successfully on the Mwi river, but I located several well-used roost perches in forest patches there and one on Txaquie itself. They were marked by droppings and some could be confirmed by feathers. However, no bones were found under any of them; and neither here nor in Ethiopia were the regular perches marked by an accumulation of pellets, as happens with many owls. Under one perch on Txaquie I found an accumulation of bones, perhaps a disintegrated pellet of this owl; but it seems likely that fish bones are mainly digested.

The bones from Txaquie were kindly identified for me by Mr. R. A. Jubb of the Albany Museum, Grahamstown. They included opercular bones of small cichlid fishes 10–12 cm long, and part of the dorsal spine and bony humeral process of a small *Synodontis* or squeaker. These latter, a type of catfish, swim deep or among weeds by day but surface at night when they would be vulnerable to the owl. Cichlids too would move into shallows at night to feed (Jubb *in litt.*). On several nights at Txaquie a splash was heard suggestive of a catch by the owls. Here too, however, there was no indication whatever that they were other than entirely nocturnal. They were never heard calling or seen on the move before dark, though they called more in Botswana than along the Mwi in Ethiopia; and were never seen at dawn, when we were frequently about ourselves.

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Subspeciation in the Marico Flycatcher *Melaenornis mariquensis* (Smith) of Southwestern Africa

by P. A. Clancey

Received 15 January 1976

The Marico Flycatcher *Melaenornis mariquensis* (Smith), 1847: Marico R., western Transvaal, of a large segment of the South West Arid District and some adjacent parts of Ethiopian Africa, was first shown to exhibit subspecifically significant variation by Irwin (1957), when he proposed *M. m. acaciae* from Ohopoho in the Kaokoveld of northwestern South West Africa. Later, the species was reviewed by Lawson (1963), who recognised three subspecies, proposing *M. m. vinaceus* from Tshane, in the Kalahari, western Botswana, as a third race. I drew attention (Clancey 1968) to the peculiar characters of some Marico Flycatcher specimens from "Mkien" Farm, near Bulawayo, Rhodesia, taken by Durban Museum personnel, suggesting that these perhaps indicated a shift in western Rhodesian populations from nominate *M. mariquensis* to an as yet undescribed form in the northeastern sector of the species' range. I have recently pursued this latter line of enquiry, marshalling for the purpose a series of 402 specimens drawn from the collections of the Durban, East London and Transvaal Museums and the National Museum of Rhodesia, Bulawayo. To the responsible officials of sister institutions for assistance in organising the loan of material I tender my thanks.

In the Marico Flycatcher variation affects the hue of the brown upper-parts and the lengths of the wings and tail, and overall follows a closely comparable pattern to that of many similarly distributed polytypic species of birds. In the main, the largest and palest birds are those in the west of the range from Angola, south to the northern Cape, with darker coloured populations in the mesic east. In freshly moulted examples the upper-parts are distinctly more pink or vinaceous tinged than those taken later in the year, a colour change which takes place in a relatively short period of time.

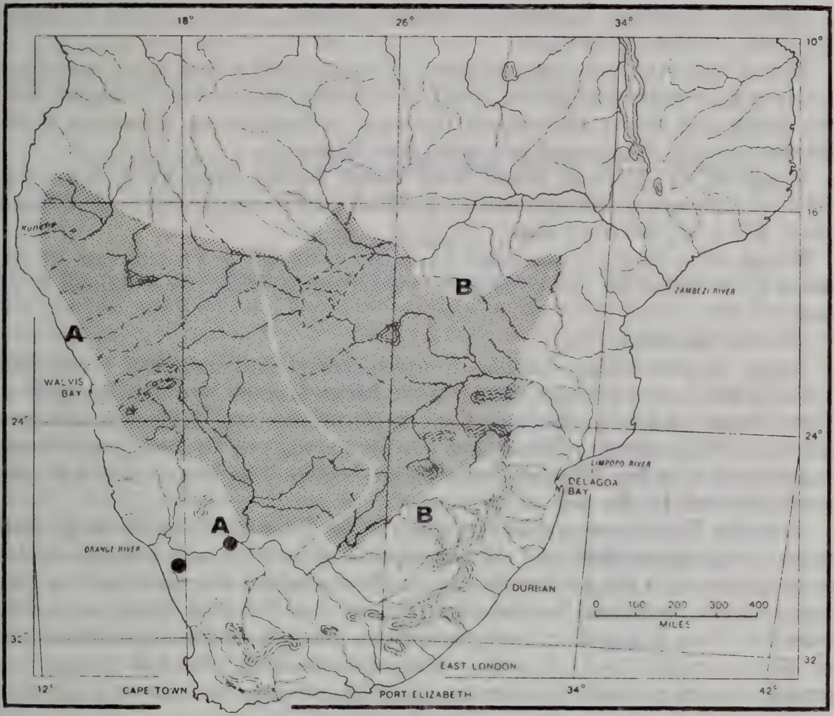
The large material available to me reveals incontrovertibly that both Irwin and Lawson failed to appreciate the measure of individual variation and the nature, extent and variability of the habitat-induced differences evident in most comprehensive museum series. Irwin believed his *acaciae* to be restricted to the Kaokoveld of northwestern South West Africa, taking the range of the nominate subspecies as far north in South West Africa as Windhoek and to Ghanzi in northwestern Bostwana. Lawson, in admitting the validity of *acaciae*, extended its range south as far as Rehoboth, in northern Great Namaqualand, at 23° 18′ S., 17° 03′ E., at the same time placing the populations of "the interior plateau of South West Africa" in his new race, *vinaceus*. Lawson examined twenty specimens of *vinaceus* from South West Africa, most of these collected in the Windhoek district during May 1959 by personnel engaged in the joint Durban/East London Museums expedition of that year. Examination of the Windhoek series, perhaps the best available in freshly moulted condition from a single locality, reveals that there is a considerable range of individual variation in the relative yellowness or redness of the dorsal surfaces in far western populations of this flycatcher. Even allowing for this, specimens collected at Neudamm, Windhoek, in October 1941, by Austin Roberts are very decidedly yellower above than the yellowest 1959 birds from the same area and agree with paratypes of *acaciae* from the Kaokoveld. In the case of a pair from the Rehoboth district, a ♀ from Valencia Ranch, taken on 13 May 1965, shows the characters attributed to *vinaceus*, while an example from Kobos, in the same district, taken two months later (in mid-July) matches paratypical skins of *acaciae*. Moving still further south in the arid west of the South African Sub-Region, freshly moulted birds from the Gemsbok National Park in the northern Cape are seen which are every bit as pallid as the palest northern South West African examples. Again, further southeast, most specimens in the Durban Museum collection from the Kuruman district of the northern Cape more closely resemble the Kaokoveld representation—after making allowance for a slight difference in the relative freshness of the samples—than they do fresher birds from the Kalahari immediately to the north.

The relatively wide spectrum of individual variation in a population and the marked colour change to the dorsum correlated with insolation and the wearing of the plumage, dictate that no useful subdivision of the arid western populations of the Marico Flycatcher into northern and southern taxa can be sustained and that only two races in the species are admissible. The genetically based colour and size variation is, generally speaking, relatively slight. Resulting from these findings I place Lawson's *vinaceus* as a synonym of *M. m. acaciae*, the range of which is now seen as extending from Angola, south to the Kalahari of Botswana and the northern Cape.

Apropos my suggestion that the northeastern populations might constitute a fourth subspecies, a freshly moulted sample from the Makgadikgadi Pan area of Botswana reveals that the population of this region is not separable taxonomically from that of the Transvaal (topotypical of *M. m. mariquensis*), though greying more than others through the action of the sun and wear in this particularly harsh, glaring environment.

The revised characters and ranges of the two acceptable races of the Marico Flycatcher will now stand as follows:

(a) **Melaenornis mariquensis mariquensis** (Smith), 1847: Marico R., western Transvaal.


18°
26°
34°
10°
16°
24°
32
12°
34°
42°
Kunene
B
ZAMBEZI RIVER
A
WALVIS BAY
LIMPOPO RIVER
DELAGOA BAY
B
A
ORANGE RIVER
DURBAN
0 100 200 300 400
MILES
EAST LONDON
CAPE TOWN
PORT ELIZABETH

Sketch-map showing the revised ranges of the two recognisable races of the Marico Flycatcher in southern Africa.

A. *Melaenornis mariquensis acaciae* Irwin
B. *Melaenornis mariquensis mariquensis* (Smith)
● Extra-limital records of *acaciae.*

Dorsum in freshly moulted condition dark Saccardo's Umber (Ridgway 1912, pl. xxix) with vinous-grey bloom. Venter white, the upper breast with faint buff wash.

Wings of 12 ♂♂ from the Transvaal 81–87·5, mean 84·7, SD 2·15, SE 0·62, culmens 16–18, mean 17·0, SD 0·67, SE 0·19, tails 71–75·5, mean 73·1, SD 1·64, SE 0·47 mm.

Wings of 12 ♀♀ 82–87, mean 84·7, SD 1·52, SE 0·44, culmens 16·5–18, mean 17·1, SD 0·47, SE 0·14, tails 69–74, mean 72·6, SD 1·83, SE 0·53 mm.

Material examined. 280.

Range. Eastern northern Cape, extreme western Orange Free State, bushveld regions of the Transvaal highveld (east as far as Leydsdorp), Rhodesia in the dry west and locally over the midlands to Salisbury, Marandellas, Umvuma and Fort Victoria, southwestern Zambia, southwestern, western and northern Botswana (generally north of a line Ghanzi–Damara Pan–Molepolole), and Caprivi and adjacent southeastern Angola.

Remarks. The birds of the Makgadikgadi Salt Pan complex of Botswana and adjacent areas tend to become greyer through insolation and wear than in the case of populations of the same taxon occurring to the east (in Rhodesia and the Transvaal).

(b) **Melaenornis mariquensis acaciae** (Irwin), 1957: Ohopoho, Kaokoveld, northern South West Africa.

Synonym. Bradornis mariquensis vinaceus Lawson, 1963: Tshane (Tsane), Kalahari, western Botswana.

Differs from the nominate subspecies in being paler and more vinaceous sandy red, or more ochraceous, over the dorsum, and markedly redder over the rump and upper tail-coverts (dorsum in fresh dress vinaceous Buffy Brown (pl. xl)). Wings and tail paler. Size larger.

Wings of 12 ♂♂ from South West Africa 85–91, mean 88·5, SD 1·74, SE 0·50, culmens 17–18·5, mean 17·7, SD 0·50, SE 0·14, tails 73–78·5, mean 76·3, SD 1·98, SE 0·57 mm.

Wings of 12 ♀♀ 85·5–90, mean 87·9, SD 1·62, SE 0·47, culmens 17–19, mean 17·6, SD 0·61, SE 0·18, tails 75–81, mean 77·2, SD 1·88, SE 0·54 mm.

Material examined. 122.

Range. Southwestern Angola in south-central and southern Huila and parts of southern Cubango, South West Africa (except Namib and much of Great Namaqualand), northern Cape in Gordonia and Kuruman districts (south to Olifantshoek, Sishen and Kuruman, west to Vryburg), and Botswana south of a line Ghanzi–Damara Pan–Molepolole. Intergrades with the nominate race in the east of its range.

Remarks. Environmental factors result in the fairly rapid loss of the pinkish tinge to the upper-parts and the assumption of a duller and yellower facies to the dorsum in the present taxon. As shown in the discussion above, the race *vinaceus*, proposed in the first instance on Kalahari birds in freshly assumed dress, is based on such phenotypic change, the paratypical material of *acaciae* available to its describer being in moderately abraded plumage, as revealed by the wear shown over the tips of the remiges and tails in specimens re-examined during the course of the present study.

Some populations of *acaciae* are apparently subject to an eastward or northeastward shift in the cold, dry winter months, judging by well-marked examples of it taken within the limits of the nominate subspecies in Rhodesia. Even making allowance for their age, three skins taken at Bulawayo in May 1908, in the collection of the National Museum of Rhodesia, agree with fairly recent skins of *acaciae* from both southwestern Botswana and South West Africa. A ♀ dated 8 September 1957, from Grassland, Felixburg, Rhodesia, matches many topotypical examples of *acaciae*, while a further example from Hillside, Bulawayo, dated (probably incorrectly) 6 January 1948, likewise agrees with the same taxon in the redness of the upper-parts.

A juvenile ♀ taken at O'Kiep, northern Little Namaqualand, northwestern Cape, on 21 April 1960, is in the collection of the Transvaal Museum, Pretoria (T.M.Reg.No.31, 689). The collecting locality is well to the southwest of the range of the species. The specimen is probably referable to *acaciae*, and, judging by the date, almost certainly a wanderer from the north. Winterbottom (1968) lists the species from the Aughrabies Falls on the Orange R., to the east of O'Kiep, which is also well southwest of the species' established range.

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Additional Migrant Records from Seychelles

by D. A. Turner & A. D. Forbes-Watson

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Feare (1973, 1975) recorded a number of migrant birds new to the Seychelles and the Malagasy region. These notes add further records, and may serve as a reminder to all visitors to Seychelles between October and April to be on the alert for additional migratory records.

Pernis apivorus. A Honey Buzzard was observed circling over Felicité Island on 1 October 1975. As it flew low past us, the tail with two black bands near the base and one at the tip were clearly visible. The "pigeon-like" appearance of the head, and long wings, plus the heavily barred under wing pattern, clearly distinguished it from any *Buteo* species. The flight feathers were noticeably ragged, obviously due to heavy moult.

This is the first record in both the Seychelles and Malagasy region; a very early record from Madagascar is rejected by Rand (1936: 498, 496), despite Delacour (1932). It is likely however, that some of the birds of prey from Seychelles, recorded as *Buteo* sp. by Loustau-Lalanne (1962) and by Penny (1974: 153) may refer to Honey Buzzards.

Tringa ochropus. A Green Sandpiper observed at a small freshwater inland pond on Silhouette Island on 8 October 1975 is the first record for Seychelles.

Glareola maldivarum. Benson & Roux (1967) distinguished two adult pratincoles collected on Mahe in October and November 1877 as *G. maldivarum*. Feare (1975) recorded pratincoles from Bird Island in September and October 1972 but states that comparison of photographs with specimens at Cambridge suggest his birds were *G. pratincola*.

We observed three pratincoles on Praslin on 3 October 1975, and one we saw on Bird Island on 13 and 14 October 1975 had been present there since 1 October (Mrs. Savy, pers. comm.) Photographs of the Bird Island bird taken by D. A. Bullock have been seen by C. W. Benson, who agrees that probably the species was *G. maldivarum*, not *pratincola*. The tails of all birds were noticeably less forked than in *G. pratincola*, of which we know the resident race in East Africa. Since *G. pratincola* is only migratory in small numbers to northern Africa (Vaurie 1965) and *G. maldivarum* is strongly migratory in winter, it seems more likely that all Seychelles records of pratincoles are of *G. maldivarum*. As far as we know *G. pratincola* has not been recorded further south than the Sudan and Ethiopia*, and is therefore unlikely to have been recorded during September and October in Seychelles some 2,000 miles further to the southeast.

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* Mr. C. W. Benson states (*in litt.*) that *G. maldivarum* has been recorded as far south as Mauritius (Benson, *Bull. Brit. Orn. Cl.* 1971: 1–2) and that there is a record from Bird Island for 4 November 1963 (Bailey, *Ibis* 1967: 439), which is most likely referable to *G. maldivarum*.—ED.

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Status of the White-crowned Starling *Spreo albicapillus* (Blyth) in Kenya

by D. A. Turner & A. D. Forbes-Watson

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Keith's (1964) description of the race *Spreo albicapillus horrensis* from North Horr in northern Kenya has until recently been the only record of the White-crowned Starling in Kenya. On 19 June 1975, we observed White-crowned Starlings in the Mandera district of northeastern Kenya, 10–12 in Mandera township itself and 6–8 also at c. 35 miles south, in both cases in close association with human habitation and cultivation. These were of the nominate race and considerably beyond the known range of either the northern Somalia population or, and more likely, the Yavello population in southern Ethiopia described by Benson (1946).

We also observed *S. a. horrensis* on 21 June 1975 in many small groups along the northern edge of the Dida Galgalla desert c. 90 miles north of Marsabit and c. 80 miles east of North Horr, in much the same area as seen by L. H. Brown in 1963 (Keith 1964). These birds were noticeably smaller than the Mandera birds, as shown by Keith. Young birds with yellow bills and gapes were still being fed by adults. Altogether c. 50 birds were seen in small parties over a seven mile stretch of fairly lush ground (following exceptionally heavy rains in April) before the open thorn bush finally gave way to the barren lava desert of the Dida Galgalla. Also on 3 July 1973, A. D. F-W. and others saw four *S. a. horrensis* c. 30 miles southeast of North Horr, associating with camels, walking near their feet, presumably catching flushed insects.

It now appears that *S. a. horrensis* ranges over a wide area of northern Kenya from the North Horr area eastward along the northern edge of the Dida Galgalla desert, while *S. a. albicapillus* is found in the extreme northeastern corner of Kenya around Mandera. The much thicker thorn bush accurring in the Moyale-Wajir-Ramu triangle probably separates the two races.

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Buccal colours of sunbirds as an age character

by R. K. Brooke

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Brooke (1970a, b) suggested that the different colours, particularly of the palate, found in the mouths of sunbirds Nectariniidae might provide a method of grouping the species placed in an enlarged genus *Nectarinia* by Delacour (1944). Further data on buccal colours have been assembled by myself and by W. W. Howells at my request, from material in the collections of the National Museums of Rhodesia. Data recently obtained, together with that already published (Benson & Penny 1971, Brooke 1970a, b, Howells 1971), are summarized in Table 1. The species are listed according to the subgenera and species groups (treated as subgenera) of Delacour (1944) as being the latest revision of the family. It appears that what has seemed a taxonomic character is, in fact, a character of age, sex and breeding condition. In short, breeding adult male sunbirds have dark mouths, nonbreeding adult males have somewhat paler mouths, adult females have pale mouths, males in post juvenal moult do not attain adult mouth colours until the moult is nearly complete and juvenals have yellow to orange or pink mouths. The biological significance of these findings are obscure, since, as previously remarked, male sunbirds display facing away from their females.

TABLE 1

Buccal colours of some sunbirds Nectariniidae

Species	*Adult males*	*Adult females*	*Males in post juvenal moult*	*Juvenals both sexes*
Nectarinia (*Cyrstostomus*) *sovimanga* (Benson & Penny 1971)	Black sometimes, blackish pink	Flesh pink	—	Flesh pink
N.(*C*). *talatala*	Black	Yellow-grey	Yellowish-pink	Yellow
N.(*C*). *venusta*	—	—	—	Dusky orange
Nectarinia (*Anthobaphes*) *chalybea*	Yellow/black/mauve or brownish black with white centre patch	Orange, pink when about to lay	Yellow with pink centre patch	Orange
N.(*A.*) *minulla*	—	—	—	Orange
N. (*Aidemonia*) *cuprea* (Howells 1971)	Dark red or dusky mauve	—	Orange	Orange
N.(*Cyanomitra*) *batesi*	—	—	—	Orange
N.(*Chalcomitra*) *amethystina*	Very dark brown to black	Yellow-grey	Dull vermillion	Yellow-grey
N.(*C.*) *senegalensis*	Brownish grey to black or dusky red	Yellowish pink to yellow-grey	—	—
N. (*Nectarinia*) *bifasciata*	Dark grey-brown to black, sometimes with yellow underlay	Off white to pinkish grey or yellow	—	Rich yellow to orange or pink

References:

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Ecology and breeding habits of the White-billed Starling *Onychognathus albirostris* in Tigrai, Ethiopia

by L. H. Brown & K. M. Thorogood

Received 22 January 1976

GENERAL ECOLOGY AND BEHAVIOUR

The White-billed Starling *Onychognathus albirostris* is an Ethiopia highland endemic species, apparently commonest north and west of the Rift Valley but also recorded from Bale, south and east of the Rift. Locally abundant in suitable habitats, in most of its range it prefers rocky gorges and cliffs, between 2000 and 3000 m a.s.l. It occurs in small parties or singly, but may also form large noisy flocks, often associated with waterfalls. In this respect it resembles the Slender-billed Chestnut-wing *O. tenuirostris* more than the Common Redwing *O. morio*; but although it occurs alongside *O. tenuirostris* it does not normally reach such high altitudes as the latter. In Semien *O. albirostris* occurs on cliffs up to 3100 m, while *O. tenuirostris* occurs to the upper limits of vegetation, feeding, for example, on Giant Lobelias *Lobelia rhynchopetalum* up to 4500 m. In the Bale Mts., southeast Ethiopia, *O. tenuirostris* is abundant at around 3000 m, but *O. albirostris* does not normally occur with it; while in the Bole Valley, near Addis Ababa, at 2200–2500 m all three species, *albirostris*, *tenuirostris* and *morio* occur together. Here *O. albirostris* and *O. tenuirostris* prefer the neighbourhood of water, while *O. morio* is not confined to waterfalls and gorges.

All three species also occur in Central Tigrai; but here *O. albirostris* largely occupies the niche occupied, for instance in East Africa, by *O. morio*, being common round rocky mountains bearing remnants of Olive-Cedar (*Olea-Juniperus*) forest, and much more abundant and widespread than either *O. morio* or *O. tenuirostris*. *O. tenuirostris* occurs only near waterfalls and along streams at about 2000 m or over, while *O. morio* has been seen only in semi-arid Acacia bushlands around rocky cliffs near Shiket, at about 1500 m. Thus in most of Ethiopia *O. albirostris* appears intermediate between *O. morio* and *O. tenuirostris*, but in Tigrai becomes the dominant species.

In Tigrai *O. albirostris* is also common in towns, perhaps because of the long tradition of skilled drystone building in Tigrai providing good breeding sites. It also frequents more recent man-made structures such as road bridges, for example in Shoa near Debre Berhan and Debra Sina. It thus shares the habit of associating with man and buildings shown by *O. morio* (Broekhuysen 1951, Brown 1965, Rowan 1955), the Somali Chestnut-wing *O. blythii* (Archer & Godman 1961) and the Bristle-crowned Chestnut-wing *O. salvadorii* (Urban *et al.* 1970). *O. tenuirostris*, though occurring commonly in inhabited parts of Kenya, is not known to associate with any man-made structures but breeds exclusively behind or near waterfalls (Brown 1965), while the Pale-winged Starling *O. nabouroup*, which might be expected to behave like *O. morio* apparently only breeds in rock clefts (Roberts, 3rd Ed, revised Maclachlan & Liversedge 1972).

According to Hall & Moreau (1970) *O. albirostris* is placed in a species group with Waller's Chestnut-wing *O. walleri*, the Pale-winged Starling *O. nabouroup*, and the Socotran Chestnut-wing *O. frater*. Reasons are not given; but all these birds of dissimilar habits are short-tailed. *O. frater* and *O. nabouroup* inhabit desert environments and might on that account be better placed with Tristram's Grackle *O. tristrami*. *O. walleri* is a forest species breeding in holes in trees, quite unlike most other *Onychognathus* species, and resembling more the forest starlings of the genus *Poeoptera*, some of which also have red wings. This paper will demonstrate that in most of its habits *O. albirostris* is probably closest to *O. tenuirostris*.

VOICE

O. albirostris' voice is intermediate between the sharp excited chatter of *O. tenuirostris* and the sweet whistling calls and songs of *O. morio*. Males utter a variety of short whistling calls: "*Chee-up*", "*Tu-it*"; sometimes a low "*Chut*"; and when singing near the nest a repeated, rather sharp "*Kwit-kwit*", accompanied by raising and lowering of the tail; also a call like "*Chirip*". In anxiety scolding near the nest a harsh grating "*Charr*" or "*Churrr*" is uttered. The calls are more like those of *O. morio* than those of *O. tenuirostris*, to which in other respects this species seems closer. However the notes are neither so long drawn nor so melodious as those of *O. morio*.

BREEDING HABITS

Nest-sites.

Although Smith (1957) records a pair building at Senafe, Eritrea, in June, the nesting of this species was substantially unknown until K.M.T. observed a pair breeding in a hole in the wall of the garment factory in Makalle in 1973. The same hole was again occupied in 1974, and was frequented in 1975, though breeding in 1975 was unsuccessful, if indeed the birds ever laid. This hole was about 9 m above ground in a vertical wall, inaccessible without a long ladder or ropes, and accordingly was not closely examined. Four young were successfully reared in both 1973 and 1974, but although the female remained within the hole for long periods and was thought to be incubating in Spetember 1975 it was evident by late October that no young were reared.

Other nest-sites in man-made structures in or near Makalle included:

(i) A nest with C/4 found in a hole under a bridge on the main Addis Ababa–Asmara road near Quiha; this was the only accessible site and is described more fully later.

(ii) Two nests with young found in late September by V. Robertson above the door lintels on an upper floor balcony of the old palace at Makalle. Later attempts to examine these nests more closely were frustrated by illiterate police, though permission had been given by the Chief Administrator, Dr. Haile Selassie.

(iii) A nest behind a drainpipe against the outside wall of the Abraha Castle Hotel at Makalle, which did not exist in early February 1974, and was not used in 1975, though the pair of starlings frequented it at intervals between 10 Sep and 31 Oct, without adding much to it. It was clearly their nest, but was dilapidated and unused, so was not examined more closely.

In addition, *O. albirostris* was suspected by L.H.B. of breeding under bridges along the main road from Addis Ababa to Dessie, between Debre Berhan and Debra Sina at 2800–3000 m in October 1974; however no definite site was located.

The natural nest-site of this species was long suspected by L.H.B. to be in vegetation on cliffs and in caverns behind or beside waterfalls, since in the Bole Valley and Kessem River gorges near Addis Ababa flocks were seen behaving much like *O. tenuirostris*, which always uses such sites, while an old nest, possibly of this species, was found in a cave in the Kessem River Gorge. In Tigrai three natural nest-sites have been found:

(a) In an inaccessible narrow crevice on a sandstone cliff face on Debre Zhion mountain, near Dugum, on 15 Oct 75. This crevice was about 20 m below the lip of the vertical 80 m face, among grass tussocks growing where water had earlier trickled during the rains. Both adults visited it twice, the female entering and staying some minutes. Her behaviour was consistent with feeding young. This site would have been quite typical of natural sites of *O. morio* in Kenya, though in a depeer crevice than most; and was typical of the sites suspected but not examined by Smith (1957).

(b) Two nests at Romanat Falls, 8 km from Makalle, both containing young on 27 Oct 75. Two parents were seen visiting each nest, and at 18.10 hrs on 27 Oct the female of each pair entered its nest and remained within, while the males apparently roosted on ledges or trees on the cliff face above. One nest was entirely hidden in dense maidenhair fern (*Adiantum* sp.), wetted by the spray, about 2 m above the water of the surge pool of the falls. Though invisible, its precise location was determined by the visiting adults.

The other nest was in a damp hole at the back of the cavern behind the same falls, about 3 km above the water, and was visible from across the pool. On 31 Oct L.H.B. swam through the pool to the cave, but found that the nest was still inacessible with the available ladder, as the cliff at that point overhung the water. H.Arundale had observed both parents visiting each nest repeatedly earlier the same day, thus confirming the presence of young.

Nest and eggs.

The nest found under the road bridge (see back) on 23 Sep 75 was acessible and could be closely examined. It was in a drainage hole about 3 m from the concrete base of the bridge, about ½ metre in. On 23 Sep L.H.B. and V. Robertson found C/3. On 28 Sep K.M. and B. Thorogood found C/4, removed, measured and returned the eggs. They were rather broad ovals, resembling eggs of *O. tenuirostris* rather than those of *O. morio*, clear turquoise blue with small well-defined dark brown and blackish spots, mainly clustered about the broad end and measured 30–33 mm × 20–21 mm, averaging about 20·7 × 31·25 mm.

The nest was a substantial construction laterally compressed by the nature of the site, but otherwise resembling other *Onychognathus* nests. It had probably been used repeatedly and merely repaired in 1975. It was not taken to pieces, but apparently had no mud base, being composed wholly of grass and cereal leaf blades, lined with finer plant fibres and rootlets. The nest rim was about 11–12 cm above the base, which in a site not laterally compressed would have been about 15 cm across. The central cup was 9–10 cm across by 4–5 cm deep.

This nest was re-examined on 26 Oct, when it should have contained large young. The parent starlings were still present, but the nest was abandoned and filled with the dry droppings of Speckled Pigeons *Columba guinea*. Whether it had been abandoned through competition from this large pigeon (which breeds and roosts in many such drainage holes under bridges in most of Ethiopia), or whether it had regrettably been robbed by Ethiopian children who observed us taking an interest in it, is unknown.

Laying dates and breeding success.

K.M.T. has records of laying at the garment factory site in Aug and Sep. The other nests found suggest laying in Sep (2) and Oct (2), the sites at Romanat Falls with small young late in October being later than the others in drier sites. Thus this species in Tigrai apparently breeds late in the rains, or just after the rains have finished, suggesting that, as in *O. tenuirostris* (Brown 1965), laying dates may be related to flood conditions. These dates are consistent with some of the few available records for the Common Redwing *O. morio* in Ethiopia (Urban & Brown 1971; and L.H.B. unpub. nest records). The young from the garment factory site left the nest in October, suggesting that the combined incubation and fledging periods might be c. 35 days, similar to that of *O. morio*. However, more precise data are needed as incubation periods might vary, as they do in *O. morio*, while fledging periods might be longer in wet waterfall sites, as in *O. tenuirostris* (Rowan 1955, Brown 1965).

Breeding behaviour of adults.

Scattered data suggest that the behaviour of this species generally resembles that of *O. morio* and *O. tenuirostris*. Nest-sites are probably used for several or many successive years, both in artificial and natural sites. The basic nest structure in a dry artificial site might only need a little repair annually, but in wet cave sites might disintegrate in the August–September floods and require complete reconstruction (as in *O. tenuirostris* in such sites—Brown 1965). Probably most nest building is done by the female who often remains for long periods in the hole while the male sings and postures on a song post outside. At the garment factory site the males' song post was the corner of the parapet on the roof of the building. A male was also once seen near Quiha holding a rootlet in his bill and singing beside a female feeding at the edge of a cereal field, at least 1 km from their possible nest site near a small waterfall. At the garment factory site on 22 Sep 75 the male collected scraps of dyed thread and took these into the nest hole when the female was inside; and at the Abraha Castle Hotel site the female often spent several minutes perched on and apparently examining the nest, working sometimes on the material but adding little, while the male perched and sang on the parapet above.

Although little is known of the incubation period, the female probably incubates most and is fed by the male. On 23 Sep 75 the garment factory male spent some minutes battering to death a hard elliptical beetle, which repeatedly slipped from his bill. Eventually he took it to the female in the hole. In this case laying was not proven; but in both *O. morio* and *O. tenuirostris* males feed sitting females.

After the young hatch they are fed by both parents, but more often by the female. As in *O. morio* and *O. tenuirostris*, both parents usually depart together on a feeding foray, and return together; females may then have food and males none. However, often both feed the young in turn, and sometimes both enter the nest together, as at Romanat, 27 Oct 75. In such damp waterfall sites it seems likely that females remain brooding small young for part of the day and at night, as in *O. tenuirostris* in similar situations (Brown 1965). Both sexes feed large young, coming and going together, and entering the nest in turn. All identifiable food has consisted of insects, including a hard beetle, three grasshoppers and a butterfly. Away from the nest the adult frequently flies out from a perch to catch an insect in the manner of a flycatcher. On 27 and 31 Oct females entering the Romanat Falls nests had beakfuls of small unidentifiable objects, probably small insects, which they possibly regurgitated to the young as in *O. tenuirostris* (Brown 1965).

Four young were reared in the garment factory nest in both 1973 and 1974, but in 1975 this pair failed, if they ever laid. In five pairs observed there were two cases of non-breeding and one failure, with a success rate overall of 8 young from 12 known eggs and 20 potential eggs, if the average clutch is four: about 1·6 young per pair per annum. The success of the Romanat Falls nests was unknown. As in other *Onychognathus* spp, especially *O. tenuirostris*, one has the impression that only a proportion of pairs breed annually, many more adults being seen paired than nests are found, especially near natural waterfall sites where breeding may be severely limited by the availability of suitable dry nest holes.

Young remain near the nests, apparently dependent on the parents, for a few days after first flight, then follow their parents to feeding grounds, forming small family parties. Recently flown young are duller black than their glossy parents, and have grey heads like females, but have white bills and reddish wing-feathers like the adults. The white bill may not be invariable, as apparent juveniles with dark bills have been seen by L.H.B. in Semien at 3000–3100 m, in flocks with adults.

Later in the dry season adults and young form into larger flocks of up to 10–12 in Makalle; but in some other sites, e.g. the Kessem River Gorge and Bole Valley, up to 100 or more have been seen together. During the day such flocks may split up into smaller parties or even singles and gather again to roost, as happens in several other *Onychognathus* spp (*tenuirostris*, *morio*, *salvadorii*). Young and adults are mixed in these large flocks, which often visit waterfalls in the heat of the day to bathe, as in *O. tenuirostris*.

Although the general behaviour of this species is thus very much like what is known of other *Onychognathus* species, and especially that of *O. tenuirostris* in its liking for waterfalls and gorges, *O. albirostris* appears less extremely gregarious than *O. tenuirostris*, while its adaptation to man-made breeding sites, at least in Tigrai, and probably elsewhere should undoubtedly assist it to exploit new habitats and help it to breed more successfully. It is not known whether it competes directly with *O. tenuirostris* for breeding sites near waterfalls, as no nest of *O. tenuirostris* has so far been found in Ethiopia.

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The wing proportions of the Eocene Diver *Colymboides anglicus*

by C. J. O. Harrison

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Storer (1956) examined the material in various collections which had been referred to a small diver, *Colymboides minutus* Milne-Edwards 1867, of the

Aquitanian deposits of France of Late Oligocene or Early Miocene age. Comparing the lengths of various bones he showed that in this species, although smaller, the proportions of the wing bones relative to each other were similar to those of Recent divers, *Gavia* species. Lydekker (1891) described a larger species, *Colymboides anglicus*, from the Upper Eocene of Hampshire, England, based on a coracoid in the collection of the British Museum (Natural History) no. 30330. In a recent re-examination of British Upper Eocene bird material (Harrison & Walker, *in press*) a humerus (c 31341) and the frontal end of a skull (c 31343), both in the Sedgwick Museum, Cambridge, have been referred to *C. anglicus*. In addition an ulna from the Upper Eocene, Hordle (=Hordwell), Hampshire, British Museum (Natural History) no. 36795, presented by S. Laing in 1862 and listed by Lydekker (1891) as an unidentified ulna of a carinate bird, now appears to be referable to *C. anglicus* and makes possible further comparison of wing proportions between *C. minutus*, *C. anglicus* and *Gavia*.

The British Museum coracoid indicates that *C. anglicus* was larger than *C. minutus* and it is smaller than the Recent Red-throated Diver, *Gavia stellata*. It measures 42·4 mm long, about half as long again as that of *C. minutus*, and three-quarters the size of that of *G. stellata*. The humerus is incomplete, being broken away proximally at about the distal edge of the bicipital surface. Like the humerus of *C. minutus* the shaft is stouter and more curved than in *Gavia*, and the internal condyle appears to project further distally than in either *Gavia* or *C. minutus*. The incomplete humerus is 67 mm long and if restored by comparison with that of *C. minutus*, in which the humerus is 62–66 mm long, would appear to have been c. 85 mm long. This is a little less than three-fifths the length of the humerus of *G. stellata*. The new ulna is of the typical diver type. It is proportionally stouter, larger at the articulating ends, and more curved than that of *C. minutus*, but is barely longer, being 57·8 mm long compared with 49·8–56 mm in *C. minutus*; and it is only half the length of the ulna in *G. stellata*.

In comparison with the bones of *G. stellata* therefore, *C. minutus* has wing bones with similar ratios of length relative to each other, while *C. anglicus* has a coracoid three-quarters as long as that of *G. stellata*, a humerus less than three-fifths as long and an ulna only half as long. There is always some possibility that palaeontological specimens may be referred to the wrong species, but from the material available it would appear that in comparison with other divers *C. anglicus* had a much shorter wing. A development of this kind is not unusual in birds which obtain their food in water. However, this is the earliest known form of true diver and since the shorter wing represents an evolutionary divergence from the typical structure such a bird is unlikely to have given rise to later, more generalised forms. *C. anglicus* may therefore represent a specialised offshoot from a more generalised gaviid stem, rather than a direct ancestral form of either the later *Gavia* species or of *C. minutus*.

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The problem of the cassowary in New Britain

by C. M. N. White

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The presence of cassowaries on two islands which do not lie on the continental shelf of Australia and New Guinea poses a problem of how a large flightless bird reached these localities. Recently I discussed (White 1975) the presence of *C. casuarius* in Seran (Seram), and showed that these birds could be feral descendents of birds brought there by human mercantile activities. Brief reference was also made to the presence of *C. bennetti* in New Britain, and I pointed out that, although Mayr (1945: 1) had suggested that New Britain must have been colonised by a pair swimming the Vitiaz Strait from northeast New Guinea to New Britain, there was evidence to show that introduction by way of human mercantile activities was likewise possible in this case.

There is certainly no evidence that New Britain was linked by land to New Guinea even when ocean levels were lower during the Pleistocene. Although not lying on the continental shelf, Gilliard & LeCroy (1967: 183) state that in former times New Britain was more closely connected to the mainland of New Guinea, but this may be quite misleading. Any geological similarities between parts of New Britain and the northern coastal ranges of New Guinea were established in the Miocene, when various islands emerged, and long before some of them became the present day northern coastal ranges of New Guinea, consolidation of which in the north of the central cordillera was probably post-Pliocene (Marchant 1972: 221–2). New Britain and the region of the Vitiaz Strait are an area of tectonic instability and extreme vulcanism. The northern part of New Britain is heavily covered with volcanic ash of Pleistocene to more recent date (Brookfield & Hart 1972: 26–35), but there is no evidence that such vulcanism resulted in temporary or partial bridging of the Vitiaz Strait. The lack of other evidence for any past land link with New Guinea is strongly reinforced by the fact that, in contrast to New Guinea, New Britain has an impoverished bird fauna, such as characterises oceanic islands, of about 130 breeding land and fresh water species.

Mayr admitted that the chances of successful colonisation by swimming across the Vitiaz Strait would have been very slight, to which may be added that sea conditions prevailing there are very unfavourable. A strong current from the southeast flows through the strait almost throughout the year, while from May to November winds from the southeast, with long periods of high velocities, produce such stormy conditions that sea-going canoes are weather bound (Allied Geographical Section 1943: 55, 61).

On the other hand long established indigenous trading networks show how *C. bennetti* could have been carried to New Britain by human agency. It is well known that cassowaries are extensively traded in New Guinea, often over long distances. Captive *C. unappendiculatus*, which must have been brought from north New Guinea, have been found in New Britain (Mayr 1940: 3). Harding (1967) has described and analysed the trading networks of the Vitiaz Strait, operating between the Rai coast, south of Madang on Astrolabe Bay and the Huon Peninsula, New Guinea and New Britain. This network was formerly much more extensive, but declined after the introduction of German administration into the area in 1884. Harding, when he studied the situation in 1963–64, found the network was still in being, operated by the Siassi islanders, living off Umboi Island, and using large two-masted canoes when weather conditions in the Vitiaz Strait were favourable. He found that a well defined two-way traffic existed. He did not specifically note cassowaries among commodities traded, but this is not of great significance, since it is known that *C. unnappendiculatus* has been carried by man to New Britain. Given the existance of this trading network, it seems most likely that *C. bennetti* originally reached New Britain by this agency.

Salvadori (1882: 501–503) reported that in the middle of last century the inhabitants of New Britain caught and domesticated young cassowaries, and traded some to a Captain Devlin. One of the latter reached the London Zoological Gardens and was described by Gould as *C. bennetti*. Subsequently a number were brought to Europe and they bred in the London Gardens. It might thus be supposed that description of any distinctive characters of birds from New Britain would have been well established. This is not so. Salvadori described adult *bennetti* from New Britain as having the bare neck blue with a wine-red area on the lower sides of the neck. Mayr (1931: 710) stated that birds from the Huon Peninsula, in adjacent New Guinea, were distinguishable as *C. b. hecki*, with a variable amount of red on the throat and upper sides of the neck. Later (1945: 1) Mayr stated that differences between birds from New Britain and the Huon Peninsula could not in fact be accurately described in the absence of coloured field sketches of birds from these localities, but gave no explanation for this reversal of his earlier opinion.

I am grateful to Mrs. M. LeCroy (American Museum of Natural History, New York) for some recent data about two birds from New Britain. A female, (AMNH 333637) collected by Coultas in 1933 during the Whitney Expedition has recorded on its label "Neck reddish purple with lighter bluish patches. Pinkish red patches at sides", which may indicate that it was immature since immature *bennetti* were briefly stated by Salvadori to have the neck bluish violet and pink. A colour photo was also lent to me of a bird collected by Gilliard in 1958–59. This shows a lateral view of the neck, agreeing with Salvadori's description of an adult, but it also shows a purplish pink patch on the side of the head over the jaw articulation. Mrs. LeCroy informs me that in a second photo this patch is even more distinct. This character occurs commonly, though not invariably, in *C. bennetti* in New Guinea. The mounted type of *C. b. hecki* in the Zoological Museum, Berlin, is painted with a dark red patch below the ear aperture (Warren 1956: 760). Another *C. b. hecki* from the Huon Peninsula, originally described as *C. foersteri* Rothschild, had a large pink patch below the ear, and lacked red on the front and upper sides of the neck. *C. b. hecki* as illustrated by Rothschild (1900: pl. 37) similarly has a uniform blue throat without any red area. On the other hand, *C. keysseri* Rothschild was described as having the front of the throat and neck extensively pale red. The birds described as *hecki*, *foersteri* and *keysseri* all came from the area of the Huon peninsula, and must, as Mayr (1931) concluded, represent a single variable form. Birds lacking a red throat patch and having a pink area on the side of the head match Gilliard's New Britain bird. Birds in adult black plumage with a red throat patch may be retaining an immature character, or may exhibit individual variation.

Within all this considerable range of recorded plumage variation, there is no evidence of any distinction between birds from New Britain and from northeast New Guinea, which accords well with the suggestion, put forward above, that New Britain birds are descendents of birds introduced from adjacent New Guinea—in which case *hecki* is a synonym of nominate *C. bennetti*.

I am grateful to Dr. R. Schodde, CSIRO, Canberra for commenting (*in litt.* 22.XI.74) on an outline of this suggestion: "I am much taken by your idea that New Britain birds may have originally been carried there by man—it makes sense in so many ways".

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Notes on the Hawk-headed Parrot *Deroptyus accipitrinus*

by E. McLoughlin & P. J. K. Burton

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The Hawk-headed Parrot *Deroptyus accipitrinus* is the sole representative of a distinctive genus from northern South America, placed between *Amazona* and *Triclaria* by Peters (1937). This paper presents new information about the habits and anatomy of *Deroptyus*. The field observations recorded here were made by E. McL, extending and amplifying his earlier account (McLoughlin 1970); and prompting PJKB to examine anatomical specimens, with the resulting comments in the second section of this paper.

FIELD OBSERVATIONS

Observations were made between 1970 and 1973 in an area of mainly sand-belt forest with some savannah, both natural and man-made, in Berbice, northern Guyana.

Voice

Certain calls are highly characteristic, and once learned are the most useful key to identifying *Deroptyus* in the field. In Guyana, its widely used Arawak name, the Hia-Hia parrot, derives from its most frequently heard call, which consists of two units, combined in various ways, e.g. "tak-heeya-heeya", "tak tak heeya-heeya", etc. The commonly uttered combination "tak-heeya" has its syllables weighted exactly as in the word "trachea", and the syllable "hee" is considerably higher in pitch than the other two.

The species also has a varied repertoire of other notes. These include a prolonged soft "yaag", single bugle like notes and a loud, musical "lawera". Group calling heard on other occasions included a wide variety of musical or chattering calls, soft piping notes and a high-pitched "slit", repeated many times sandwiched between the familiar "tak-heeya" calls. No obvious significance could be ascribed to most of these calls, but a pure musical whistle, sometimes followed by a very rapid "cha-cha-cha", was uttered by two pairs which were possibly establishing or disputing possession of nesting areas.

The "tak" which precedes the "heeya" calls immediately distinguishes the notes of the Hawk-headed Parrot from those of the Black-headed Caique *Pionites melanocephala*, whose characteristic "keeya" call sounds similar to that of *Deroptyus*, but lacks the "tak" and is more long-drawn out. There are other resemblances: both species engage in a performance, generally conducted by about four birds over periods of ten minutes to half an hour or more, when bizarre sounds are frequently uttered in a leisurely manner.

Feeding

Two pairs were seen feeding in late March on the ripe fruits of a cocorite palm, *Attalea fagifolia*. An Amerindian informant living in the area stated that it fed on fruits of the Awarra Palm *Astrocaryum tucumoides* and the Cuyuru Palm *A. tucuma*. In cultivated clearings it came to feed on the fruits of Poixdoux, *Inga* spp. and Guava *Psidium guajava*.

Nesting

Five nests were found or reliably reported. Four were located in holes, almost certainly excavated by woodpeckers, in the trunks of large dead trees a few feet below the division into main branches. The fifth nest was on the extremity of a much narrower hollow limb, and this was clearly a replacement nest, situated only a short distance from a typically sited nest which had been destroyed a few weeks earlier when the tree fell. When visited 13 March 1970, one bird flew out when the tree was tapped, and the head of its mate also appeared at the entrance hole. Both birds remained silent.

At a nest visited on 31 Jan 1973, an adult's head appeared and remained framed in the entrance hole for half an hour; the following evening, both birds arrived together shortly after the observers, and alighted in a nearby tree calling agitatedly. The less commonly heard magpie-like "chak-chak . . ." call was repeated rapidly. One of the pair then flew into the hole, but again, remained watching from the entrance. This bird was again seen in the entrance hole on 7 March.

Also on 7 March 1973, a nest in a cultivated clearing was reported; this was believed to have young, since the adults were visiting for short intervals only. Subsequently it appeared that this nest also came to grief when the tree crashed after heavy rains, and the only nestling found was killed by a dog before it could be rescued. Such incidents may well be a significant cause of nest failure in this species.

On 23 March 1972, a nestling was obtained from a typical nest at about 40–50 ft, near the broken end of a tree trunk, the nest chamber being situated about two feet below the entrance hole. There did not appear to be any other nestling or egg in the nest cavity. E. McL. examined the bird, which had feathers in quill, with green just beginning to sprout from their tips.

Miscellaneous

As noted by various other observers, *Deroptyus* usually flies low, never more than 15–20 ft above the treetops. On two occasions where there was an opportunity to observe its flight in the open, this was seen to be a regular series of about five wing flaps separated from the next series by a longish low straight glide, making the overall flight pattern slightly undulating. The rather small head and slightly spread tail are distinctive.

It does not appear to be particularly gregarious. The largest group encountered on the many occasions on which it was either seen or heard contained four birds, in view simultaneously, and two others calling but hidden from view. Usually only one or two pairs were seen together, occasionally only a single bird.

On a couple of occasions, one of a pair resting in the treetops raised part or all of the erectile neck feathers for a brief period, but no obvious significance could be attached to this action. Captive birds raising these feathers seem to be indicating mild irritation rather than alarm. The feathers of the crown are sometimes raised independently of those forming the fan.

While usually regarded as a poor mimic of the human voice, one specimen lent to E. McL could give a most life-like imitation of a dog afflicted by a sudden excruciating pain, its anguished howls trailing away to a whimper. The juvenile bird mentioned earlier, after nearly a year had poorly defined calls which only vaguely resembled those of the wild birds.

ANATOMY

There is very little information on the anatomy of *Deroptyus*. Brief remarks on osteology are given by Garrod (1876), and it was included in the study of tongue myology in the Psittaciformes by Mudge (1903). The following notes are based on a skeleton and a spirit specimen in the British Museum (Natural History), Registration Numbers S/1955.5.52 and A/OH.238 respectively.

	Deroptyus accipitrinus (S/1955.5.52)		*Amazona aestiva* (S/1973.66.108)	
	Length	*Length relative to cranium*	*Length*	*Length relative to cranium*
Cranium from fronto-nasal hinge	36·6	100·0	41·4	100·0
Exoccipital process (from postero-dorsal corner of auditory meatus)	9·3	25·4	9·0	21·7
Culmen	30·5	83·3	32·8	79·2
Palatine (to postero-ventral tip)	24·4	66·7	25·5	61·6
Pterygoid	16·9	46·2	17·1	41·3
Quadrate (otic process to ventral edge)	13·7	37·4	12·6	30·4
Orbit, max. length	17·6	48·1	17·5	42·3
Lower jaw length	39·0	106·6	44·4	107·2
Lower jaw, max. depth	15·1	41·3	14·5	35·0
Total length, vertebrae 1–5	26·0	71·0	32·5	78·5
Widest vertebra	7th=10·5	28·7	8th=10·5	25·4
Sternum, from antero-ventral tip of keel	56·1	153·3	60·5	146·1

Table 1: Comparison of some skull and other measurements in single specimens of *Deroptyus accipitrinus* and *Amazona aestiva* from the British Museum (Nat. Hist.). Sternum length is included as a rough index of body size.

The skull (Fig. 1) is of particular interest, and differs extensively from the skulls of *Amazona* spp.—the genus with which Deroptyus has been associated in recent lists. Table 1 compares skull and vertebra proportions in *Deroptyus* with a single specimen of *Amazona aestiva*. A much more extensive programme of measurements should obviously form part of any future investigation. Nevertheless inspection of a wide range of genera seems to indicate that the main points emerging from this limited comparison would hold good not only for other *Amazona* species, but probably for most other parrots except very large forms. The principal differences can be summarised as follows:—

1. The cranium is slightly shorter in *Deroptyus*, but with much enlarged exoccipital (="opisthotic") processes which protrude beyond the posterior of the cranium and with a proportionately more expanded occipital region.
2. Palatine, quadrate and orbits are larger relative to both cranium length and body size in *Deroptyus*.
3. The lower jaw is considerably deeper in *Deroptyus*, and shows a prominent mandibular foramen (absent or very small in *Amazona*) and little emargination of the anterior edge.

It is worth noting, in passing, that the orbital ring is complete in both specimens, although Garrod (1876) described it as incomplete; possibly his specimen was a young bird.

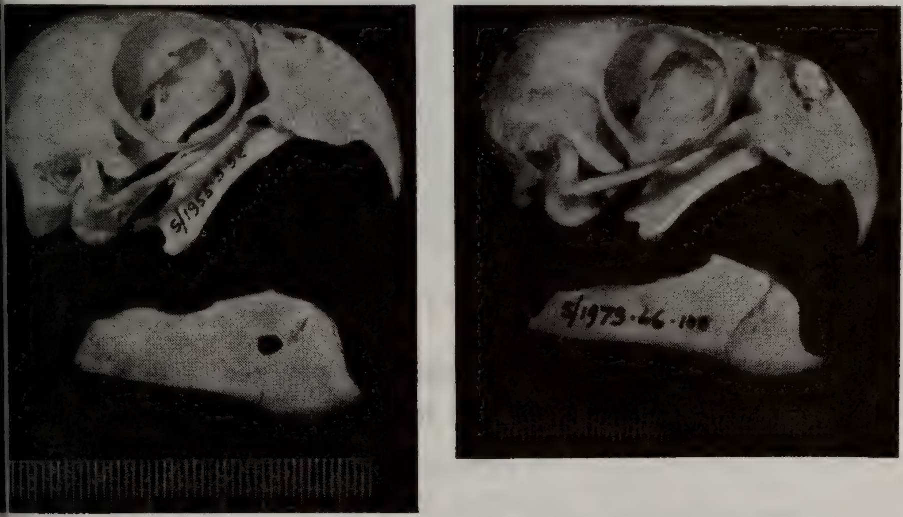

Fig. 1: Lateral views of skulls of (a) *Deroptyus accipitrinus* (b) *Amazona aestiva*.

The most notable modifications are those of the occipital region, the large relative size and posterior protrusion of the exoccipital processes being equalled only be a few genera of very large parrots (*Nestor*, *Strigops*, *Probosciger*, *Anodorhynchus*, *Ara*). The modifications increase the area available for the insertion of the muscles concerned with turning and raising the head, which are particularly important for sideways wrenching movements used in detaching fruits. The muscle most affected is M. rectus capitis lateralis, which is inserted on the posterior edge of the exoccipital process and arises from the hypapophyses of vertebrae 2, 3, 4 and 5 in *Deroptyus*, but from 2, 3 and 4 only in a specimen of *Amazona guildingii*. The sites of origin of the remaining muscles show no special modification—in both *Deroptyus* and *Amazona guildingii* their vertebrae of origin are as follows: M. complexus—4 and 5; M. splenius capitis—2; M. biventer cervicis—origin via a long tendon from the thoracic region. The cervical vertebrae of *Deroptyus* are relatively shorter but wider than in *Amazona*.

The overall effect of these jaw and cranium features is to confer on *Deroptyus* a considerably more powerful feeding apparatus relative to its body size than in *Amazona*. Although the two genera are probably broadly similar in ecology, these basic differences in morphology make any close relationship seem unlikely. Discerning their true affinities is more difficult and osteology alone can only partially help (see Thompson (1900) and Berlioz (1941) for discussion of the problems involved). *Deroptyus* has perhaps evolved relatively rapidly from a stock of generally smaller parrots to exploit larger food items. E. McL's observations indicate similarities to *Pionites*, while Low (1972) points out resemblances to *Pyrrhura conures*. Forshaw (1973) also suggests these genera as possible relatives. Further study of the ecology and behaviour of this interesting species would clearly be well worthwhile.

The nests described were shown to E. McL. by Jaap Langenburg, and Tom Elek. Youell Scott supplied details of one which McL. did not see. Information on its feeding was given by Alvaro Sarmento. To all of them we acknowledge our grateful thanks.

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Variation in juvenile plumage of *Centropus toulou toulou* (Müller) and *Centropus toulou insularis* Ridgway

by Rebecca Woodell

Received 16 March 1976

Centropus toulou toulou is known only from Madagascar. The subspecies *C. t. insularis* occurs on Aldabra Atoll. The only other subspecies, *C. t. assumptionis* Nicoll, from Assumption Island, is believed extinct (Stoddart *et al.* 1970). Skins of juvenile *C. t. toulou* and *C. t. insularis* in the collections of the British Museum (Natural History), American Museum of Natural History and the Muséum National d'Histoire Naturelle were recently examined. Two different juvenile plumage types were found, which are described below. Names of colours were obtained from Smithe (1975).

One type (Fig. 1a) is dusky brown with some black on the upperparts, heavily barred buff-yellow on the mantle, merging into dense, more cinnamon-rufous speckling on the crown. The wings and upper wing-coverts are barred cinnamon-rufous and dusky brown. The tail and tail-coverts are dusky brown barred buff-yellow with a green wash. The underparts are heavily barred buff-yellow and dusky brown becoming darker on the abdomen.

The second type is best represented by the single Aldabra bird (Fig. 1d). It is darker, more nearly black on the upperparts than the first type and the mantle is speckled, not barred, with cream rather than cinnamon-rufous. Like the first type, it is speckled on the crown, but the markings are finer. The wings and wing-coverts are a colour between cinnamon-rufous and russet, barred with dusky brown. On the underparts differentiation between the two types is much less well defined, but the Aldabra bird has the markings on the throat and chest more striated, less barred in pattern. Tail barrings varied considerably, without consistent differences in the two types. Both types show barring on the upper back, least so in the speckled birds, especially the Aldabra one.

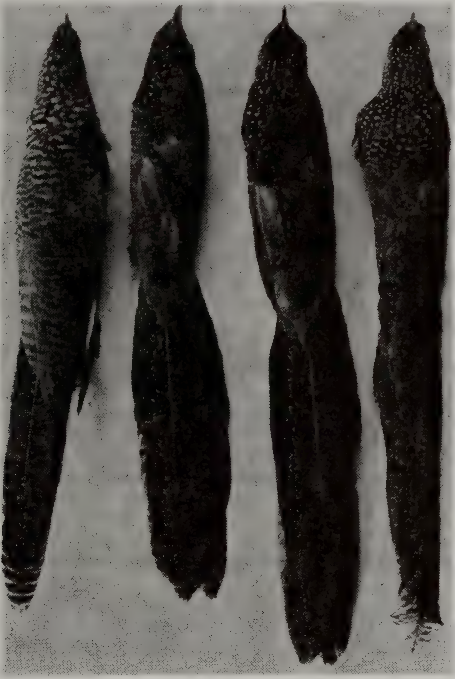

Figure 1

Juvenile plumage types of *Centropus toulou*

Left to right:—
(a) Barred type from Imerina in the Humid East of Madagascar (Rand 1936).
(b) Intermediate type from Maromandia on the northern edge of the Western Savanna close to the humid Sambiro District of Madagascar (Rand 1936).
(c) Speckled type also from Maromandia.
(d) Speckled type from Aldabra.
(Photo: S. R. J. Woodell)

Intermediates occur between these two types. These are speckled on the head and mantle with cinnamon or cinnamon-rufous rather than cream, and may also show dense speckling on the crown.

Those specimens examined for which localities were given were sorted into representatives from humid and dry regions (Table 1). Co-ordinates were obtained from *The Times Atlas of the World* (1968), those for Ankafana (now Tsarafidy) and Imerina were kindly supplied by Mr. C. W. Benson. Other information was obtained from Rand (1936) and Farrow (1971).

TABLE 1

Relationship of juvenile plumage types of *Centropus toulou* to climate

Locality	*Coordinates*	*Biotic Division of Madagascar*[1]	*Specimen No. and date*	*Notes*
		Speckled plumage		
Aldabra, Middle Island, East Channel	9°24′S 46°20′E (from Collectors label)	(Savanna[2])	Brit. Mus. 1968.43.96 21 Jan. 1968	Fig. 1, (d)
Ampotaka	25°02′S 44°40′E	Sub-desert	Brit. Mus. 1931.8.18.482 18 Mar. 1930	
Maroantsetra	15°23′S 49°44′E	Humid East	Brit. Mus. 1931.8.18.51 9 May 1930	Advanced moult
Maromandia (1 day East)	14°10′S 48°06′E (Maromandia)	Western Savanna	AMNH 411491 19 Jan. 1931	Fig. 1, (c)
Maromandia (1 day East)	14°10′S 48°06′E	Western Savanna	Brit. Mus. 1931.8.18.496 19 Jan. 1931	
		Intermediate plumage		
Maromandia (1 day East)	14°10′S 48°06′E	Western Savanna	MNHN Paris C.G. 1932 956 25 Jan. 1931	Fig. 1, (b)
Maromandia (1 day East)	14°10′S 48°06′E	Western Savanna	MNHN Paris C.G. 1932 952 27 Jan. 1931	
Namaroka (1 day S. of Soalala)	16°05′S 45°21′E (Soalala)	Western Savanna	MNHN Paris C.G. 1932, 965 12 Mar. 1931	
		Barred plumage		
Imerina	c. 19°S 48°E	Humid East	AMNH 627833 Feb. 1896	Not fully grown Probably nestling
Imerina	c. 19°S 48°E	Humid East	AMNH 627834 Feb. 1896	Not fully grown Probably nestling
Ankafana (now Tsarafidy)	21°09′S 47°10′E	Humid East	Brit. Mus. 88.12.10.768 Feb. 1881	Fig. 1, (a)

[1] The biotic divisions of Madagascar are taken from Rand (1936: 215).

[2] For a discussion of the climatic classification of Aldabra see Farrow (1971: 69). The climate of Aldabra is compared with that of Diego Suarez which is located in Rand's Northern Savanna region of Madagascar.

Of the four Madagascar specimens from Maromandia, which is on the border between the humid Sambirano District and the Western Savanna, two are speckled (Fig. 1c) and two are intermediate (Fig. 1b). The bird from Namaroka, in the Western Savanna is also intermediate. The Maroantsetra specimen is much advanced in moult, but it appears speckled rather than barred, and its darker colouring more closely resembles the speckled birds. Possibly additional specimens would reveal barred birds from this humid locality.

The remaining five juvenile specimens have no localities given, but they should also be mentioned as they show similar plumage variation. These are Brit. Mus. 90.1.30.26 and AMNH 627844 which are barred, AMNH 627847 and AMNH 627848 which are speckled and Brit. Mus. 67.5.24.8 which is intermediate.

It appears that this difference in juvenile plumages of *C. toulou* is a geographical variation, the barred type being associated with the humid eastern regions of Madagascar and the speckled type with the drier western regions and Aldabra. Alternatively, it is possible that in certain habitats dark plumage is most suitable whereas in others a more contrasting light and dark pattern, whether speckled or barred, is more important for camouflage. This could help to explain why the birds from Maromandia (Fig. 1, b, c) both speckled and intermediate, are generally darker and less contrasting in colour than either (a) from the Humid East, which is barred or (d) from Aldabra, which is speckled. In humid Maroantsetra dark, less contrasting plumage may be the important factor rather than the plumage pattern itself. Further study would be worthwhile.

Acknowledgements

I am especially grateful to Mr. C. W. Benson for his interest and advice and for his invaluable personal information concerning Madagascar localities. I wish to thank Dr. David Snow of the British Museum (Natural History) for making the facilities at Tring available to me, and M. Christian Erard of the Muséum National d'Histoire Naturelle and Mr. John Farrand Jr. of the American Museum of Natural History for sending material. Mr. Farrand was most helpful when I visited the Museum. My husband and Dr. R. Hnatiuk offered much helpful comment.

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Layard's extralimital records in his *Birds of South Africa* and in the South African Museum

by R. K. Brooke

Received 22 January 1976

The small print in Layard's *Birds of South Africa* (1867) contains records of species collected or observed in the Atlantic Ocean, the Southern Ocean, the Indian Ocean, their islands and the east coast of Africa. These records do not appear to have been noticed by any subsequent writers on the avifaunas of any of these areas, including Reichenow (1900–1905) on Africa, Rand (1936) on Madagascar, Jackson & Sclater (1938) on Kenya, Frade (1953 a, b) on

Mozambique, Benson (1960) on the Comoros, Watson *et al.* (1963) on the Indian Ocean islands, and Bannerman & Bannerman (1968) on the Cape Verde Islands. The purpose of this communication is to draw future workers' attention to so obscure a source of records — records which may indicate changes in distribution or abundance in certain species. Layard himself (pp. 21, 54) believed that there had been at least a great increase in the numbers of *Hirundo rustica* wintering in South Africa after 1840. He also gives several records from Sri Lanka, but since he published separately on the avifauna of Ceylon, those records can probably be found there.

Layard's journey through the Southern and Indian Oceans (pp. 331, 358, 360, 365) was made in the survey frigate H.M.S. *Castor* under the command of his friend, Commodore, later Rear-Admiral, H. D. Trotter who commanded the Cape of Good Hope station 1854–1857 (Laughton 1899). By deduction, the voyage was made in the second half of 1856 and early 1857. Layard had been appointed Curator of the South African Museum in Cape Town in December 1854 and was in Cape Town in January 1856 (Barry 1975). Trotter returned to the United Kingdom in mid 1857 (Laughton 1899). Southern Ocean sea birds were obtained off the Cape in 1856 (p. 360) and off Mozambique (see below), which implies Layard's presence there between July and October; and Palaearctic waders were obtained in Kenya in winter plumage (see below) which implies his presence there between October and February. The second half of 1856 and early 1857 is thus the only time during which Layard and Trotter could have made the journey.

Some, at least, of the specimens went to the South African Museum. I am advised by Prof. J. M. Winterbottom (*in litt.*) that none can now be found, but that in 1879 the then Curator, Roland Trimen, compiled a manuscript *Catalogue of Foreign Birds* in the museum. Prof. Winterbottom has listed for me those species noted as received from the voyage of H.M.S. *Castor* and some of the species are the same as those mentioned by Layard. Barry (1975) states that "Layard came back laden with shells, bird skins and insects" from that voyage in the western Indian Ocean. P. J. Morgan of the Liverpool Museum has advised C. W. Benson (*in litt.*) that no Layard specimens of the 1850s and 1860s were ever received there, though material collected in the 1870s came there via Canon H. B. Tristram's collection.

I now list Layard's extralimital records by areas but with modernized nomenclature. For records mentioned in Layard (1867) the page number is given; for specimens listed by Roland Trimen SAM (South African Museum) is given to indicate the source.

ATLANTIC OCEAN

Daption capense (p. 361). One seen at 3°N in November 1866 while returning to South Africa from leave in England: a vagrant so far north.

Puffinus assimilis (SAM)
Fregetta grallaria (SAM) } In the South Atlantic.

Neophron percnopterus (p. 4). Common breeding species in the Cape Verde Islands.

SOUTHERN OCEAN

Diomedea exulans and *D. chrysostomus* (both SAM and pp. 363, 364–365). Eggs of *D. exulans* received from Crozet and Tristan da Cunha Islands. Skins of both species were obtained but without details except that Layard states that one of *chrysostomus* was obtained "off the South Coast".

Fregetta grallaria (SAM and pp. 358–359). Includes a specimen from nearly 500 km west of Cape Town, May 1867. From Layard's description clearly this species, not *F. tropica*.

Fulmarus glacialoides; Pterodroma lessonii; P. incerta; P. mollis; P. macroptera and *Procellaria aequinoctialis* (all SAM, at 32°46′S., 59°13′E., also p. 360 for *P. macroptera*).

Pachyptila vittata and *P. desolata* (both SAM, at 40°20′S., 41°00′E.).

Of the four *Pterodroma* spp. Layard mentions only *P. macroptera* in his book, and states specifically (p. 361) that he had never seen a specimen of *Fulmarus glacialoides*. Yet on pp. 360 and 365 he states that he sailed the Cape seas in H.M.S. *Castor* and obtained *Pterodroma macroptera* and *Diomedea chrysostoma*. However, Layard wrote 10 years after the event, and his duties as a civil servant precluded museum work except for one day per week (Barry 1975).

INDIAN OCEAN

(1) KENYA COAST

Ardea leucoptera (p. 309). A synonym of *Ardeola*, the squacco herons, but it is not possible to say whether he was referring to *A. ralloides*, *A. idae* or even some species of *Egretta* or *Bubulcus:* no specimens were, apparently, collected.

Butorides striatus (p. 309). Collected.

Leptoptilos crumeniferus (p. 316). Often seen.

Circaetus gallicus pectoralis (p. 15). Two collected on Fazi Island and others seen along the coast in pairs.

Milvus migrans parasitus (p. 26). Seen.

Acryllium vulturinum (SAM). Two specimens.

Pluvialis squatarola (p. 295). Many collected in non-breeding plumage.

P. apricaria (p. 296). Probably *P. dominica*, since there is no other record of *P. apricaria* in Africa (see Backhurst *et al.* 1973): Lamu northwards.

Numenius arquata (p. 322). Widespread.

Layard and a Lieut Suttee found a massed flock of waders on a mudbank at Fazi Island, so they approached and each discharged both barrels of their fowling pieces. The majority of birds killed and recovered, enough to fill a naval bread bag, were *Calidris ferruginea* (p. 331), but *C. minuta*, *C. alba*, *Tringa erythropus*, *T. nebularia* were also obtained, and *Charadrius alexandrinus*, probably the migratory nominate race rather than the sparse resident *pons*, since the other species were all Palaearctic migrants. *T. erythropus* is the only Palaearctic migrant mentioned by Layard at Fazi to be discussed by Backhurst *et al.* (1973), who believed that the first specimen from Kenya was obtained in 1953.

Dromas ardeola (p. 372). Widespread; SAM held two specimens from Lamu.

Tockus alboterminatus (SAM) } Collected from Kisilu-
Collyrio corvinus (=*Lanius collurio?*) (SAM) } dini, just north of Kilifi.

(2) TANZANIA COAST

Ardea leucoptera (p. 309). *Butorides striatus* (p. 309). Collected. *Leptoptilos crumeniferus* (p. 316).

Circaetus gallicus pectoralis (p. 15).

Terathopius ecaudatus (p. 18).

Milvus migrans parasitus (p. 26).

Pluvialis squatarola (p. 295). Collected.

Numenius arquata (p. 322).

Dromas ardeola (p. 372 and SAM).

(3) ZANZIBAR

Nectarinia senegalensis (p. 80). Common, two specimens in SAM.
Ploceus (*Hyphantornis*) sp. (SAM).

(4) MOZAMBIQUE COAST

Procellaria aequinoctialis (p. 360). Not rare.
Oceanites oceanicus (SAM).
Ardea leucoptera (p. 309).
Butorides striatus (p. 309). Collected.
Leptoptilos crumeniferus (p. 316). Collected at the mouth of the Zambezi River.
Dendrocygna viduata (p. 350). Common on the lower Zambezi.
Milvus migrans parasitus (p. 26).
Terathopius ecaudatus (p. 18). A live bird, presented by the Governor of Mozambique Town, proved to be a great eater of hens' eggs when kept in a Cape Town fowl run: this bird, or another from Mozambique, was prepared as a specimen for SAM.

Pluvialis squatarola (p. 295). Collected. *Numenius arquata* (p. 322).
Dromas ardeola (p. 372).
Nectarinia violacea (p. 79). Building a nest in a beachside *Casuarina* tree at Cabo Delgado. The species intended is obscure since the distinctive *N. violacea* is restricted to the southwest of the Cape Province of South Africa where Layard (same page) knew it well.

N. senegalensis (pp. 79 and 80). Collected while building a nest in a beachside *Casuarina* at Cabo Delgado.

(5) COMORO ISLANDS

Butoridess triatus (p. 309). Collected.
Circus spilonotus macrosceles (p. 35), *sub nom. C. cinerascens = C. pygargus;* but the specimen that Layard mentions from Anjouan was listed in SAM as *C. maillardii* (= *macrosceles*), and he adds that the species was common, as Benson (1960) also found; so that a vagrant *C. pygargus* from the Comoros is ruled out.

(6) MADAGASCAR

Egretta gularis (p. 307). Collected in Boyana Bay on the northwest coast.
E. ardesiaca (SAM).
Dendrocygna viduata (p. 350 and SAM). Abundant in the swamps and ricefields and very easy of approach.

Larus novaehollandiae (SAM). A species restricted to the western Cape and Australasia and presumably an error for *L. cirrocephalus* in non-breeding plumage, which then resembles it closely. *L. cirrocephalus* does occur in Madagascar (Rand 1936).

Dryolimnas cuvieri, *Coracopsis nigra*, *Agapornis cana* and *Eurystomus glaucurus* also held by SAM.

On pp. 155 and 245 Layard discussed the Malagasy provenance of some of Levaillant's allegedly South African species.

(7) MAURITIUS

Puffinus pacificus chlororhynchus, *Phaethon lepturus*, *Butorides striatus* (also p.

309), *Francolinus pintadeanus*, *Aerodramus francicaus* and *Coracina typica*, all held by SAM.

Terpsiphone bourbonnensis (p. 146). Nest with c/3 collected.

(8) ROUND ISLAND, MAURITIUS

Puffinus pacificus chlororhynchus, two specimens of *Phaethon rubricauda*, two specimens of *Sula dactylatra*, all held by SAM.

Fregata minor (SAM). Not recorded from the Mauritius group by Watson *et al.* (1963), though Benson (1970) records specimens collected in 1865.

Sterna fuscata (SAM).

(9) SANDY ISLAND, RODRIGUEZ

Sula sula (SAM).

S. dactylatra (SAM). Not recorded here by Watson *et al.* (1963), though regarded as probably occurring by Bourne (1968).

Larus novaehollandiae (= *cirrocephalus*) (SAM). Not recorded here by Watson *et al.* (1963).

Anous stoldidus, *A. tenuirostris*, *Gygis alba*, all held by SAM. The three terns are still present on Sandy Island (Gill 1967).

(10) FARQUHAR ISLAND, PROVIDENCE BANK

Fregata minor (SAM). Two specimens.

Bubulcus ibis (SAM). One specimen.

Larus novaehollandiae (= *cirrocephalus*) (SAM). One specimen.

Sterna sumatrana, *S. caspia*, *Gygis alba*, all held by SAM, one specimen of each. *F. minor*, *B. ibis*, *L. cirrocephalus* and *S. caspia* are not recorded for the Providence Bank group by Watson *et al.* (1963), but Stoddart & Poore (1970) and Parker (1970) do record *F. minor* and *B. ibis*. The visit of H.M.S. *Castor* to Farquhar Island is not mentioned by Stoddart & Poore (1970) in their account of its history.

It is curious that no *Larus* spp. are recorded by any modern writer for islands in the western Indian Ocean. One is tempted to doubt the records from Farquhar and Sandy Islands in the 1850s, but there is no positive evidence compelling doubt other than the lack of records for the last 20 years, a period of intensive study of the avifauna of these islands.

I am obliged to Prof. J. M. Winterbottom for data on specimens formerly held by the South African Museum, Cape Town, to Dr. F. R. Fosberg for a copy of *Atoll. Res. Bull.* 136, to Mr. C. W. Benson for help with the literature, a critique of a draft of this paper and, indeed, urging that it be written.

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IN BRIEF

(a) *Caprimulgus sericocaudatus mengeli* subsp. nov.

I regret that I made an error in transcribing the locality of the type of the subspecies *Caprimulgus sericocaudatus mengeli* in *Bull. Brit. Orn. Cl.* 95 (1): 19. Under "Type . . ." the locality cited should be 59km **west**, not east, of Pucallpa.

29 March 1976 Robert W. Dickerman

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New York, New York 10021

(b) Vagrant Lapwings *Vanellus* spp. in Brunei

A single Lapwing *Vanellus vanellus* was observed for 10–15 minutes through a 8 × 30 monocular at distances down to 15 m at 17.15 hours on 11 January 1976 on a flooded grassy area, known as G14 of the Shell concession area, Seria, State of Brunei. The bird was in typical winter plumage, and had a large crest. There appear to be no other records in Borneo, and it is usually considered that the species' southernmost winter quarters range southwards from eastern China and westwards to north and central Burma. This individual was thus 15° south of its usual range.

On 28 November 1974 a Grey-headed Lapwing *Vanellus cinereus* had appeared on the same plot of land. This was first sighted by myself and later confirmed by Mr. D. Griffin and also photographed. It is a species which normally winters from south Japan through southeast China and the Indo-Chinese countries to India. I believe that such vagrants are the victims of the monsoons from November to January and are literally swept southwards out of their normal range. It would be interesting to hear of other records which might be ascribed to the same conditions.

2 February 1976 A. P. Smith

Brunei Shell Petroleum Co. Ltd.
Seria, State of Brunei, Borneo.

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Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin*, unless a departure is explained and justified. Photographic illustrations although welcome can only be accepted if the contributor is willing to pay for their reproduction.

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Bulletin of the

British Ornithologists' Club

Edited by
Dr. J. F. MONK

Volume 96 No. 3 September 1976

FORTHCOMING MEETINGS

Tuesday, 16 November 1976 at 6.30 p.m. for 7 p.m. at the Senior Common Room, South Side, Imperial College, South Kensington (entrance in Princes Gardens, S.W.7, off Exhibition Road). *Dr. H. N. Southern will speak on the Tawny Owl.*

Tuesday, 18 January 1977 at the Goat Tavern, 3 Stafford Street, London, W.1. *Dr. Peter Ward will speak on Palaearctic migrants in Nigeria.*

Tuesday, 15 March 1977. Mr. J. M. Forshaw, the author of the well-known monograph on parrots, will speak on the ecology of parrots in Australia and their adaptations to changing environments.

Tuesday, 3 May 1977. A symposium on Asiatic birds.

COMMITTEE

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R. E. F. Peal (*Hon. Secretary*)
Dr. J. F. Monk (*Editor*)
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Dr. G. Beven

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Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 96 No. 3 Published: 20 September 1976

The seven hundred and first meeting of the Club was held at the Goat Tavern, 3 Stafford Street, London, W.1, at 7 p.m. on Tuesday, 20 July 1976.

Chairman: Professor J. H. Elgood: present 16 members and 5 guests.

Mr. Robert Gillmor spoke on Bird Illustration. He described the development up to the present time of the art of depicting birds and showed slides with outstanding examples of bird drawings and paintings.

Breeding records of Hemprich's Hornbill *Tockus hemprichii* in Tigrai, Ethiopia

by L. H. Brown

Received 23 December 1975

The nest of Hemprich's Hornbill *Tockus hemprichii* had not been adequately described until one found in the cliffs above Lake Langano, Ethiopia, in April 1970 was described by Urban *et al.* (1970). In Tigrai in 1975 three more definite nests were found, and one probable one, all in rock sites, as follows:

(i) On 15 Oct 75, in a vertical cliff near the base of Debre Zhion mountain, near Dugum, a nest was found about 15 cm inside a hole about 12 m from the base of the sandstone cliff. The hole had been visibly plastered, apparently with reddish mud, with a narrow oval slit in the centre. The male was seen to present a large grasshopper to another bird in the nest, which was inaccessible, but from the absence of any droppings round the entrance it presumably contained a female with eggs. In this case the eggs would have been laid in late September or early October.

(ii) In a sandstone cliff near Dugum 17 Oct 75 there was a nest which could not be closely examined because it was screened by forest and the entrance not properly visible from immediately below. It was about 10 m above the base of the cliff in a long vertical crack and under a large overhang, and contained young, which were watched being fed by the female, recognisable by her smaller size and smaller, more slender beak. The young emitted loud yelping cries, so presumably were large. Since Urban *et al.* (1970) estimated that the female remained in the hole for 60–70 days after laying, the eggs from which these young hatched would probably have been laid in early August, perhaps late July. The female was flying strongly and not obviously in moult.

(iii) On 31 Oct 75 a nest was found at Romanat, near Makelle, in a hole in a rock face above a small cave, at about 4 m from the base of a travertine cliff. The hole could be examined closely from immediately opposite on another rock, and was seen to turn into the cliff at an angle, the plastered entrance being heavily spattered with droppings. The male fed other birds in the hole at about 16.30 hrs with a skink, *Mabuya* sp. He had difficulty in maintaining a purchase on the entrance ledge, and flew to and from the hole at least 15 times in about five minutes, sometimes delivering food when he was able to stay for a few seconds, and sometimes overbalancing and failing. High pitched yelps, and querulous deeper squealing calls suggested that both female and young were in the hole. The skink was gradually reduced in size in successive visits, as pieces were presumably bitten off by the bird being fed. However, the male eventually departed with the head and part of the body, calling the normal piping "Pi-pi-pi-pioh" as he left. In this nest, eggs were probably laid in September.

(iv) A male flew up to a narrow slit in a travertine cliff in the Giba river valley on 21 Sep 75. He had a small lizard, but it was not taken by any bird in the hole, and he then flew 30 m and probably ate it himself. However, his behaviour was consistent with the likelihood of a female in the hole, which was inaccessible.

In all instances where feeding was seen the feeding bird stayed only a few seconds at the aperture; if the food was not immediately accepted it was taken away again.

These records all suggest that in Tigrai, *Tockus hemprichii* breeds mainly or only in cliff sites, resembling in this respect Monteiro's Hornbill *T. monteiri* in South West Africa (Kemp & Kemp) 1972 and that it is a rock breeder, since there were trees which could have been used at all the sites if preferred. Laying must take place from August to October, late in the main rains or just after. Young would normally emerge in November, at the beginning of the main dry season, but when insect life at least is still abundant. As in other *Tockus* spp. the female evidently emerges when the young are part-grown, and then assists in feeding the brood. The eggs of Hemprich's Hornbill have apparently still to be described.

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The tendinal canals of the hypotarsi as a taxonomic character of water birds

by C. J. O. Harrison

Received 13 January 1976

The long digit flexor tendons of the legs of birds, where they pass down the back of the leg over the tarsal joint, are held in place at the upper end of the tarsometatarsus by grooves in a posteriorly-projecting structure, the hypotarsus. Bands of cartilaginous tissue may roof over or subdivide these grooves, creating covered canals for the tendons; or there may be a roof of bone so that the canals become holes passing through a bony hypotarsus. The arrangement of these grooves and apertures may help in the identification of the species, genus, family and sometimes the order from which the hypotarsus originates, and this is particularly useful in avian fossils, since the proximal end of the tarsometatarsus is a solid structure which is often preserved when other bones have been destroyed. Identification of such fossil specimens is, however, usually difficult because of abrasion of the roofed portions of canals and the more prominent parts of the calcaneal ridges between them.

No systematic study of these canals appears to have been made. In general, comparative osteological studies have been limited to a single order at most, and often only to small taxa or single species. Newton (1896) commented, with reservations, on the taxonomic value of the hypotarsus but only referred to some general similarities, while other authors of general works on birds have paid it little attention. To help identify the bones of fossil water birds the hypotarsal structure of Recent birds of a similar type was also noted. In the Sphenisciformes, Gaviiformes, Podicipediformes, Procellariiformes, Pelecaniformes, Ciconiiformes, Anseriformes, and Charadriiformes the hypotarsal structure is fairly elaborate in most families (Fig. 1), the only other order with comparable complexity being the Passeriformes (Fig. 2), and this group of orders forms a suitable unit for comparisons.

Many orders show more structural dissimilarities from each other in the hypotarsi than are apparent between families, and canals may be open or closed and differ in number. Such differences are presumably linked with variation in form and function of the hindlimb. Nevertheless there are consistencies in structure within an order which are listed later. Within a family there is usually a consistent and recognisable pattern, but there are often small differences which make it possible to differentiate at the generic level (e.g. Fig. 1, E4–5, E9–10), and rarely more marked dissimilarities (Fig. 1, A1–2). Sometimes consistent differences are recognisable even at the species level (e.g. Fig. 1, D1–3, F3–4). Within these taxa the hypotarsal structure can be a useful character for identifying tarsometatarsi.

The tendinal canals are not the only feature affecting hypotarsal shape. Muscles such as the M. flexor hallucis brevis and M. abductor digiti II originate on, and may modify the calcaneal ridges. Owre (1967), for instance, shows that the considerable development of the external calcaneal ridge of the Phalacrocoracidae (Fig. 1, D7) and Anhingidae (Fig. 1, D5) is correlated with the fact that it serves as an area of insertion for the muscles providing the power-stroke in swimming.

In the birds of the orders studied the presence of several closed canals appears at times to be correlated with a more generalised overall structure; while more open canals and a more modified hypotarsus appear to be linked with greater specialisation, suggesting that the latter is a derived state. The presence of a large number of closed canals in a simple hypotarsus in the passerines may be related to this. The suboscine Superb Lyrebird *Menura superba* (Fig. 2, A) has six closed canals. The Raven *Corvus corax* (Fig. 2, B) has only five, one being constricted and apparently derived from two small canals, which arrangement occurs in other species; but four canals arranged in two pairs, as in the Dunnock *Prunella modularis* (Fig. 2, C), is more frequent. The Raven and Dunnock are typical perchers and hoppers while the Lyrebird is more terrestrial and may run like a gallinaceous bird. It could be argued that the possession of a large hypotarsus perforated by a number of canals, usual in the typical hopping and running birds, is a generalised avian condition; and that the hypotarsi of other birds show divergences from this, linked with modifications of the limb and its uses and involving the loss of covered canals.

Fig. 1 shows the range of variation of hypotarsi within each of the orders studied, progressing from those with more closed canals to the derived

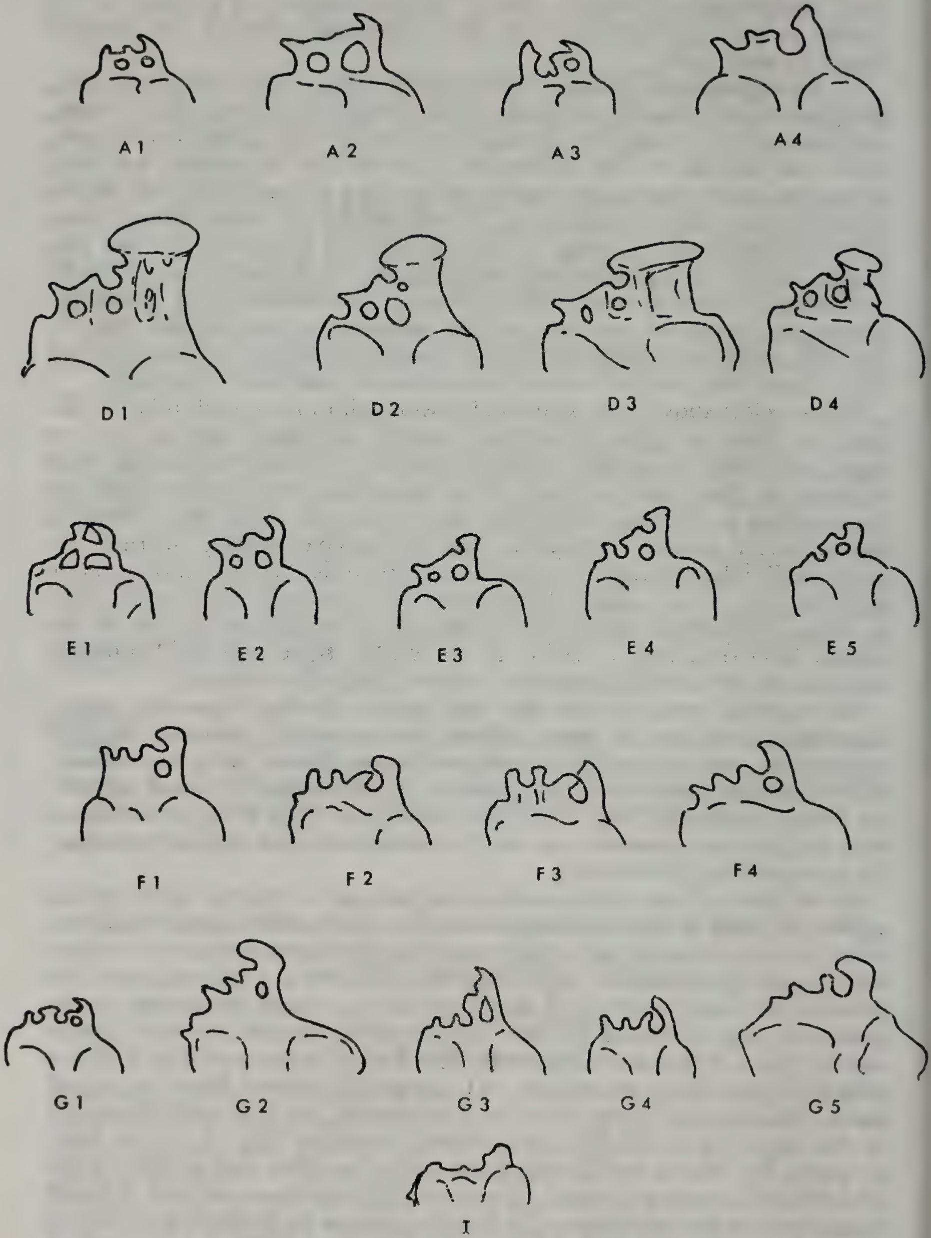
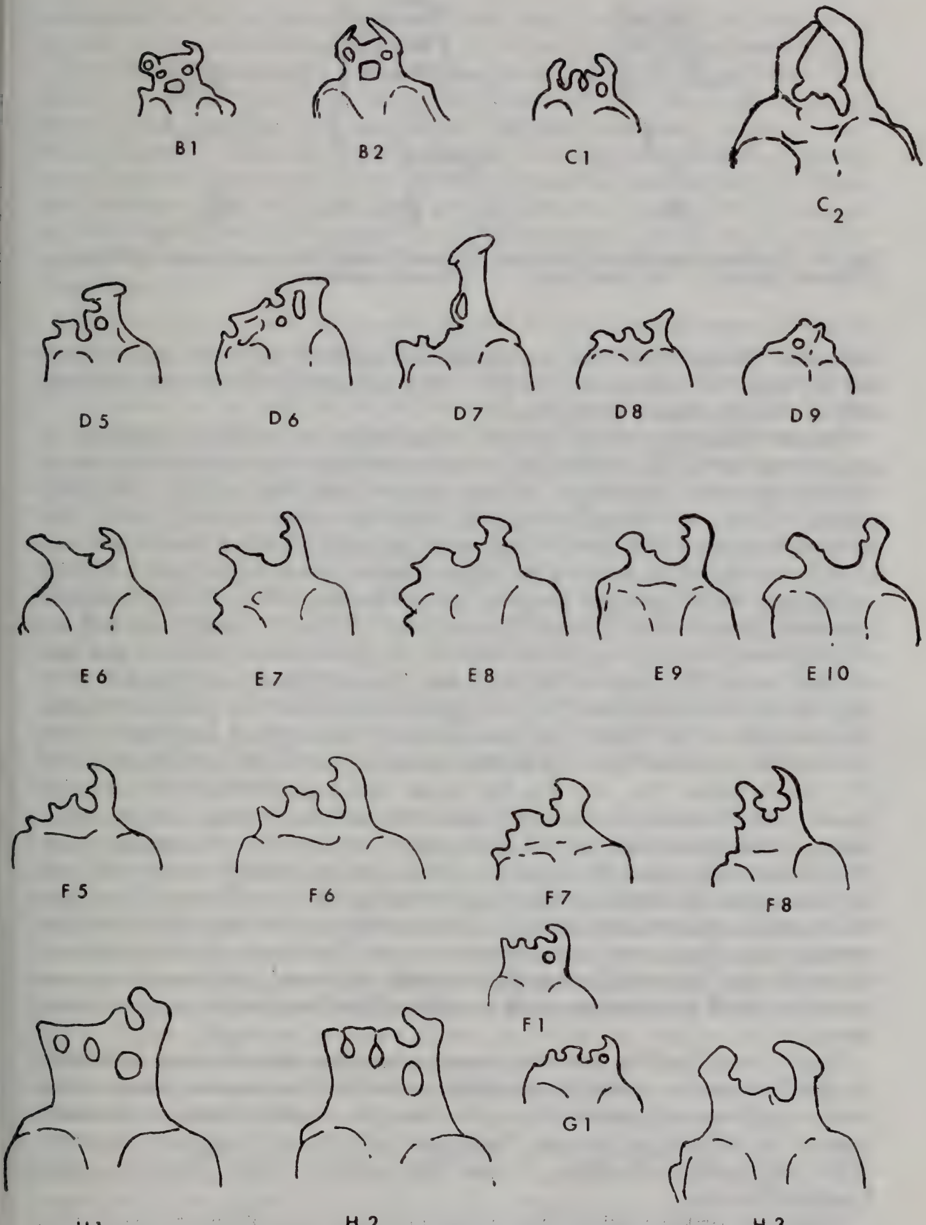


Fig. 1: Proximal views of right hypotarsi; the posterior side at top. A. PROCELLARIIFORMES. A1 *Pelecanoides urinatrix*, A2 *Fulmarus glacialis*, A3 *Oceanodroma castro*, A4 *Diomedia melanophrys*. B. PODICIPITIDAE. B1 *Podilymbus podiceps*, B2 *Podiceps cristatus*. C. GAVIIDAE. C1 *Colymboides minutus* (after Storer 1956), C2 *Gavia immer*. D. PELECANIFORMES. D1 *Pelecanus crispus*, D2 *Pelecanus occidentalis*, D3 *Pelecanus onocrotalus*, D4 *Balaeniceps rex*, D5 *Anhinga anhinga*, D6 *Sula dactylatra*, D7 *Phalacrocorax carbo*, D8 *Phaethon aethureus*, D9 *Fregata aquila*. E. CICONIIFORMES. E1 *Botaurus stellaris*, E2 *Scopus umbretta*, E3 *Coch-*



learius cochlearius, E4 *Ardea cinerea*, E5 *Nycticorax nycticorax*, E6 *Plegadis falcinellus*, E7 *Ajaja ajaja*, E8 *Geronticus calvus*, E9 *Dissouria episcopus*, E10 *Mycteria americana*. F. CHARADRIIFORMES. F1 *Scolopax rusticolus*, F2 *Alca torda*, F3 *Cepphus grylle*, F4 *Numenius arquata*, F5 *Larus argentatus*, F6 *Larus marinus*, F7 *Haematopus ostralegus*, F8 *Himantopus himantopus*. G. ANSERIFORMES. G1 *Dendrocygna viduata*, G2 *Anseranas semipalmata*, G3 *Biziura lobata*, G4 *Aythya fuligula*, G5 *Cygnus columbianus*. H. PHOENICOPTERIFORMES. H1 & H2 *Palaeolodus ambiguus*, H3 *Phoenicopterus chilensis*. I. SPHENISCIFORMES. *Pygostelis antarctica*

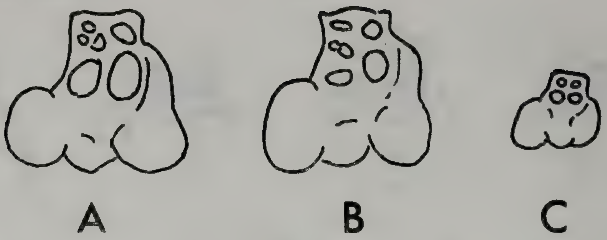


Fig. 2: Proximal view of right hypotarsi of Passeriformes, the posterior side at the top. A *Manura superba.* B. *Corvus corax.* C *Prunella modularis.*

examples. Relative size was considered unimportant and individual figures are not therefore comparable in size. They are arranged with the posterior side of the hypotarsus at the top.

Despite variations, some general consistency, as well as difference, is apparent in the patterns of canals within orders, and this might be used as an ordinal character. Although, among water birds, the extinct, diver-like toothed birds, the Hesperornithidae, and the other toothed birds, the Ichthyornithidae, both of the Cretaceous, lack a prominent hypotarsus and show no evidence of grooves or ridges, Recent water birds have a definite hypotarsus with typically four or fewer canals. Of the more complex hypotarsi, those of the Charadriiformes (Fig. 1, F) and Anseriformes (G) are comparatively similar, but in the former I recognise three posterior and one anterior canal, (F1), and in the latter one posterior and three anterior (G1, G3). In the Pelecaniformes (D), the Pelecanidae show two posterior canals, one posterior to the other, and two anterior, although in addition the last pair may be bordered by a well-defined external groove. In the Ciconiiformes (E), the Ardeidae (E1, E3, E4, E5) show one posterior and two anterior canals. The Procellariiformes (A) have two anterior canals, with an indication of two incomplete open canals posterior to these in *Pelecanoides* (A1). The Podicipediformes (B) are atypical, with two or three posterior and one large and centrally sited anterior canal; while in the Gaviiformes (C) at least three canals coalesce into one large hole enclosed in an arch formed by the convergence of a pair of large calcaneal ridges. The antithesis of the latter is shown by the Sphenisciformes (I) in which the broad, flat tarsometatarsus bears two small prominences with a wide and shallow double canal between them.

These generalisations, however, cease to be apparent in the more extremely modified examples, although classification is aided by knowing some of the intervening stages of modification. For example, on the characters used here it would be difficult to link the Phaethontidae (D8) or Fregatidae (D9) with other pelecaniform families, or the Black-winged Stilt (F8) with other Charadriiformes.

Within the orders studied there are several small taxa of uncertain affinities for which any evidence of relationship is important. The Hammerkop *Scopus umbretta* belongs to a monotypic family usually thought to be close to the storks. The distinctive hypotarsus (Fig. 1, E2) with two closed canals and an open posterior one shows some similarities to those of herons such as *C. cochlearius* (E3) and *Ardea cinerea* (E4), but little obvious similarity to Ciconiidae (E9–10). However, if a hypotarsus with a number of closed canals is an earlier and more generalised structure, then the Hammerkop may be an instance in which an isolated species has retained a generalised condition.

The Shoebill *Balaeniceps rex*, another species of uncertain affinities in a monotypic family, is usually regarded as ciconiiform; but Cottam (1957) showed that most of its osteological features resembled those of the Pelecaniformes, including the hypotarsus. The latter (D4) bears a strong resemblance to that of the White Pelican *Pelecanus onocrotalus* (D5), in which the posterior canals are reduced to a single groove. It could be argued, on the other hand, that the hypotarsus of *Balaeniceps* is a much more massive version of that found in the Boatbill Heron *C. cochlearius* (E3) of the Ciconiiformes.

The Phoenicopteridae are usually placed in the Ciconiiformes, although separation into a single-family order (Voous 1973) or association with the Anseriformes has also been proposed (Sibley *et al.* 1969). The hypotarsus (H3) consists of a pair of well-developed calcaneal ridges with a deep, complex groove between them. In the Charadriiformes, which show a wide range of variation in hypotarsal structure, *H. himantopus* (F8) has a somewhat similar but more slender hypotarsus, representing the extreme in a trend of modification by which the more complex structure is reduced to two large calcaneal ridges in a laterally-compressed hypotarsus, with a single and deep complex groove derived from a group of tendinal canals between them. Since this species differs from other charadriiformes in its exceptionally long legs, and similar long legs are characteristic of the Phoenicopteridiae, and since the long-legged Threskiornithidae and Ciconiidae have stages in the development of a similar hypotarsus (E6–10), it is possible that such a structure represents a derived condition linked with function and likely to be evolved independently in a number of taxa. If so, then the affinities and possible derivation of the phoenicopterid hypotarsus might be found in a taxon other than the Ciconiiformes.

The extinct family Palaeolodidae of the Oligocene and Miocene consists of long-legged and long-necked birds, possibly ancestral to the Phoenicopteridae, having a distinctive hypotarsus (H1–2) showing the apparently generalised condition with several closed canals. Some specimens lack a complete bridging of the canals (as in H2). Modification of such hypotarsi by lateral compression and loss of bone between the canals might produce a structure resembling that of the Phoenicopteridae (H3), although a typical phoenicopterine hypotarsus with the deep single groove is already apparent in the Upper Oligocene flamingo *Gervaisia croiseti*. A similar reduction of bone between the canals and an increase in the size of the lateral ridges is apparent in a comparison of the Late Oligocene/Miocene diver *Colymboides minutus* (C1) with the Recent Great Northern Diver *Gavia immer* (C2).

If the hypotarsus of *Palaeolodus* species is the precursor of that of the Phoenicopteridae, then any similarity of the former to those of other taxa might help to elucidate earlier affinities. If the incomplete ossification over the canals already apparent in the second *Palaeolodus* specimen shown (H2) were carried a stage further the structure would then closely resemble that of the Woodcock *Scolopax rusticolus* (F1). Within the Anseriformes the nearest resemblance to *Palaeolodus* is that of the White-faced Tree Duck *Dendrocygna viduata* (G1), but this is less close than that of *Scolopax*. These apparent similarities might be evidence of affinity since an examination of the Telmabatidae (Harrison & Walker *in press*) of the Lower Eocene reveals a probable link between Charadriiformes, Anseriformes and probably Phoenicopteridae at this period.

These examples show that the hypotarsal structure may be a useful, though limited, taxonomic character by which to refer a species to a particular taxon and possibly indicate its affinities. There is some evidence at the ordinal level of similarities of the hypotarsus in families of known affinity. This may be of use for extinct species of unknown origin not referable to a Recent family and represented by only part of a skeleton; or for Recent species of unknown affinity it may provide clues to possible relationship which could help in a re-appraisal of their taxonomic position.

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A record of White-winged Wood Duck *Cairina scutulata* in Sumatra

by D. A. Holmes

Received 19 March 1976

The White-winged Wood Duck *Cairina scutulata* is probably reduced to near extinction over most of South-East Asia (Boonsong & Cronin 1974, Hoogerwerf 1970), but it still occurs in south Sumatra. Two were flushed from a swamp close to the Batang Hari river at Muara Bulian, west of Jambi in south Sumatra (1° 45′ S, 103° 15′ E) on 18 January 1976. The birds were seen again on four further visits during the following two weeks.

The habitat was a swamp covering a total area of some 50 hectares that is used for low quality rice each year if water levels permit. The swamp carries a varying density of swamp grasses and sedges, some floating vegetation, and patches of both open water and of exposed mud. Scattered trees remain standing in the swamp, some of them dead, and dead logs lie on the surface. A grove of open woodland and secondary growth occupies one part of the swamp. The duck used these trees for perches but they would also fly off to the surrounding secondary forest and stands of poorly managed rubber. The swamp receives some slight disturbance from fishermen, buffalo herders, and occasional rice cultivation; but the bird life is probably never deliberately disturbed. The birds were shy when on the ground and readily put to flight. When perched in a tree, they were surprisingly well camouflaged and were more approachable.

In flight they called more or less continuously, a goose or crane-like honk, with which was often heard simultaneously a high whistled note when both birds were flying together. This agrees with the description of Stanford (1931) writing of the Upper Chindwin district of Burma: "the drake and duck of two pairs seen here had separate notes, like Shelduck [presumably *Tadorna tadorna*] in the breeding season, the drake a low "cronk cronk" and the female a whistle, when on the wing". The honking note reminded me of the West African Crowned Crane *Balearica pavonina*.

Each visit was made between dawn and 09.00 in the morning or 17.00 and 18.00 in the evening, and one or both birds were each time flushed from the open swamp. The assumption that the birds were a pair is supported by the calls, although the size difference between the birds was not pronounced. The head and neck of the slightly larger bird were dirty white, and a clean white on the other, with some fine black speckling visible at close range. The plumage of the back in one and probably both birds was white, with heavy black mottling and barring, squarely demarcated from the black tail. The white wing coverts were prominent and contrasted strongly with the rest of the wing, which appeared black except in a favourable light. It was difficult to discern the distribution of white and black on the rest of the body, but the breast and belly appeared to be black, with some white markings, and larger white squares on the sides of the upper breast.

Hoogerwerf (1950) considers that *C. scutulata* of the Greater Sundas can be distinguished from the continental population by a conspicuous amount of albinism on the body, but he did not separate it into a subspecies.

At a wooded ox-bow lake at Danau Saranglang, near the village of Serasak, 20 km from Muara Bulian, the bird is known by local people as an occasional visitor, under the appropriate name of "itik hutan", meaning forest duck. It seems reasonable to assume that this duck may be still tolerably common is south Sumatra, where similar habitat is thought to be widespread and population density and hunting pressures are low. However, full aerial photographic cover would be necessary for estimating the total amount of suitable habitat.

[Since this article was submitted the author has confirmed the presence of the species in Lampung Province of southernmost Sumatra, when a pair was seen at Lake Jepara on 30 June 1976. "Suitable habitat is plentiful in this province but is rapidly disappearing owing to heavy immigration of settlers from Java"—Ed.].

I am grateful to D. R. Wells in Kuala Lumpur for his comments on a first draft of this paper.

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Additions to the avifaunas of Sumatra and Kalimantan, Indonesia

by W. G. Harvey & D. A. Holmes

Received 19 March 1976

SUMATRA

Aviceda leuphotes (Contributed by D. A. Holmes)

A party of about ten Black-crested Bazas roosted in open woodland near Palembang in south Sumatra on the night of 19–20 November 1974, and on 18 January 1976 four were seen flying north at low elevation near Muara Bulian in Jambi province (1° 45′ S, 103° 15′ E). There are no previous records for the island of Sumatra, nor apparently for Indonesia as a whole. The observer was familiar with the species in south Thailand, and it is readily identifiable by its crow-like shape, alternate flapping/gliding flight, and distinctive black and white plumage.

Migratory flocks crossing the Straits of Malacca are seen regularly from Cape Rachado (2° 25′ N) on the Malayan coast during November–December and March–April (Medway & Wells 1976, Wells pers. comm.), which suggests that Sumatra is within the normal wintering range. It is surprising that such a conspicuous hawk should have been overlooked there until now.

Calidris subminuta (Contributed by W. G. Harvey)

Robinson & Kloss (1923) list Long-toed Stint (as *Limonites minutella subminuta*) as occurring in Sumatra. However their record is not substantiated by Chasen (1935) or King *et al.* (1975), probably because of their statement on page 356: "As regards our own list we have recorded as Sumatran most of the species that are found on the mud-flats of the Straits of Malacca with one or two exceptions". This implies that not all the Charadriiformes listed were actually recorded in Sumatra but were presumed to occur because they occurred on the Malayan side of the Straits. The following record confirms that *Calidris subminuta* does in fact occur in Sumatra, which lies well within the wintering range of the species.

On 26 November 1975 I had excellent close views in good light of an individual feeding with a party of Rufous-necked Stints *Calidris ruficollis* in an area of salt pans near Banda Aceh in the extreme north of Sumatra. Compared with *C. ruficollis* it appeared distinctly smaller and slimmer, much darker above, being brownish grey with distinct black streaks, with a more distinct greyish band across the upper breast, and much paler legs, greenish-grey in colour. Its call was a soft "churrup".

Saxicola torquata (Contributed by D. A. Holmes)

An immature Stonechat was seen on an exposed perch in a rice swamp by the Kumpeh river below Jambi town (1° 30′ S) in south Sumatra on 26 January 1976. *S. t. stejnegeri* is a winter visitor to west and east Malaysia in small numbers, and has recently proved to be a fairly common visitor to south Thailand (Holmes & Wells 1975). The Stonechat is an unexpected visitor south of the equator in this region, and an addition to the avifauna of Indonesia.

The sight was distant and under difficult conditions of deep swamp, the same habitat as that used by wintering birds in Thailand, with no possibility of close approach: but the habits and stance immediately identified the bird as a chat. The crown was brown, the ear coverts black, with a pale buff patch on the side of the neck. The brown back and wings were streaked dark and there was a buff or whitish patch on the wing. The colour of the rump could not be determined, but the black tail appeared to have a narrow white tip. The throat was white or whitish, sharply demarcated from the breast which was dark buff, strongly tinged rufous on either side. This graded to brownish buff on the belly. A white throat and white tip to the tail are features that have also been noted in Malaya (Wells pers. comm.).

Cisticola exilis (Contributed by D. A. Holmes)

A colony of Bright-capped Cisticolas was found at Serasak, to the west of Jambi, in south Sumatra on 18 January 1976. The species is common in Java and central Thailand but was previously unknown in the lands between. This record, together with another from Kalimantan (see below) indicate that the species may now be spreading into the deforested portions of the equatorial zone. The habitat was lallang (*Imperata cylindrica*) grassland bordering a swampy channel, in an area surrounded by rubber and patchy woodland. Subsequently the song was heard at two other localities closer to Jambi in lallang mixed with dryland annual crops.

The males were in breeding plumage and in full song, which consisted of thin grating calls (reminiscent of some notes of *Prinia flaviventris*), which intermittently are uttered more quickly and terminate in a loud sharp "girrik". The male had the crown an unstreaked golden rufous, a strongly streaked mantle, buff underparts with an ill-defined rich rufous breast band, pale rump and buff tips to the dark tail. This combination of plumage and song is diagnostic for the species.

The terrain was shared by a small number of *Cisticola juncidis*, which favoured the more swampy ground, but both species occurred together in song flight.

[Since submitting this paper, Mr. Holmes has confirmed that *Cisticola exilis* is a common and widespread bird in the grass plains of Lampung province in South Sumatra—Ed.].

Prionochilus thoracicus (Contributed by D. A. Holmes)

A male Scarlet-breasted Flowerpecker was seen in dense rubber and secondary forest near Pinang Sore, central Tapanuli, north Sumatra (1° 35′ N, 98° 50′ E) on 6 July 1974. This beautiful flowerpecker was at once identified by the black head and neck, red crown, red breast patch surrounded by black, and a yellow patch on the lesser wing coverts.

This constitutes the first confirmed record for Sumatra. There is a skin labelled Sumatra in the American Museum of Natural History, and presumably on the basis of this Delacour (1947) included Sumatra in its range. However Chasen (1937) does not accept this record for neighbouring Billiton Island, and Salomonsen (1960) believed the label to be incorrect.

KALIMANTAN

Cisticola exilis (Contributed by W. G. Harvey)

Excellent views, down to five metres, of a male Bright-capped Cisticola in full breeding plumage were obtained in an area of long grass on damp ground near the airport in Pontianak, west Kalimantan, on 25 February 1976. It looked bulkier than *C. juncidis*, with a very distinct bright orange crown, streaked upper parts, a plain brown rump and a uniform dark tail. The underparts appeared uniform yellowish buff from chin to vent. The bird was watched for about half a minute perched in full view. It then slipped into dense herbage and a few seconds later its distinctive song was heard.

This appears to be the first record of the genus for the island of Kalimantan.

Mirafra javanica (Contributed by W. G. Harvey)

Smythies (1957, 1960) records that the Javanese Bush Lark is resident in south Kalimantan in the neighbourhood of Banjarmasin. The following record from Pontianak in west Kalimantan (on the equator at 109° E) indicates a considerable extension of range.

At least four birds were singing over the short grass areas of Pontianak airport on 25 February 1976. Although for obvious reasons I could not investigate them closely, I know the species and its song well from Java. The song flights were typical, an undulating flight of about 50–100 m, 15–20 m above the ground, on rather fluttering wings. The generally streaked brown plumage, rufous flight feathers and whitish outer tail feathers were seen on one individual.

Lonchura punctulata (Contributed by D. A. Holmes)

On 15 December 1974 and subsequently, parties of the Scaly-breasted Munia were seen in ricefields and lallang grass at the edge of the swamp at Tungkap, northeast of Banjarmasin in southeast Kalimantan (3° 10′ S, 115° 05′ E). This species is common over most of the Sunda region including the island of Bawean between Java and Kalimantan (Hoogerwerf 1963), but has apparently never been recorded previously in Kalimantan itself.

We are grateful to D. R. Wells in Kuala Lumpur for his comments on a first draft of this paper.

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Weights of African birds

by James R. Karr

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In recent years studies of a variety of ecological and evolutionary phenomena have demonstrated the increased need for knowledge of weights of birds.

Data for tropical species especially are lacking, in particular for wet forest species. As part of a study of the ecology of tropical forest bird communities, I spent nearly a year in Africa in 1971 and netted birds in forest habitats in four countries:

Liberia. 7 Feb – 3 May 1971 in three study areas within 3 km of the town of Grassfield (7° 29′ N, 8° 34′ W) near Mt. Nimba at elevations near 500 m. 49 species, 227 weights.

Ghana. A forest converted to shrubland by the charcoal industry on the campus of Cape Coast University near Cape Coast, Ghana (near 5° 6′ N, 1° 17′ W) was surveyed in early June 1971. 33 species, 51 weights.

Gabon. Late June and early July 1971 in forest at the Laboratoire de Primatologie et d'Ecologie Equatoriale (C.N.R.S.) near Makokou (near 0° 35′ N, 12° 50′ E). 31 species, 85 weights.

Kenya. July 1971 in Kakamega Forest in west Kenya, on the main tract of an extensive study by Zimmerman (1972), centered at 0° 14′ N, 34° 51′ E. 18 species, 73 weights. Also for several days in Nov. 1971 in the coastal belt of Kenya south of Malindi in the Sokoke Forest (4° 42′ N, 35° 51′ W). 9 species, 25 weights.

For more details of the study areas, see Karr (1976).

Although my sample sizes are generally small (96 species, 461 weights), they are mainly of forest interior species for which there are few or no published weight data. I have tried to discern statistically significant differences in weights for different sexes of the same species and for the same species from different geographic areas, using the t-test and accepting the 0·05 level of significance. I assumed that no significant differences in variance existed in the data. Since my work was aimed at studying community structure in African forest birds, no collections were made. Determination of the sex of birds was dependent on differences in plumage. Nomenclature follows White (1965) and Hall & Moreau (1970).

All birds were weighed in gm with Pesola spring balances; those of less than 25 gm live weight with a 30 gm balance, those over 25 gm with a 300 gm model. As pointed out by Britton (1970), many early compilations of weight data were derived from wide geographic areas and were collected by many workers using a variety of methods over several seasons. The weights in Table 1 have the advantage that all were obtained by one worker using the same techniques, and so are directly comparable with each other apart from the usual difficulties relating to diurnal variation.

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TABLE 1

Weights of African birds

Liberia (L) = Mt. Nimba; Ghana (Gh) = Cape Coast; Gabon (Ga) = Makokou; Kenya-K (Kk) = Kakamega; Kenya-S (Ks) = Sokoke. After each area name the number of birds weighed is given in brackets, followed by the average and the standard deviation, followed by the range of weights in brackets. The mean of combined data is given where means derived for country or sex are not significantly different. Weights in gm.

Accipiter tachiro: Liberia (2) 145·5±9·19 (139·0–152·0)
Turtur brehmeri: Liberia (1) 115·5
Colius striatus: Gabon (1) 45·5
Alcedo leucogaster: Liberia (5) 14·5±0·56 (13·5–14·8)
Ceyx lecontei: Liberia (1) 10·5; Gabon (2) 9·8±0·56 (9·4, 10·2); L + Ga (3) 10·0±0·32
Halcyon malimbica: Liberia (1) 96·5
Buccanodon duchaillui: Liberia (1) 36·5
Pogoniulus subsulphureus: Liberia (1) 9·0
Pogoniulus bilineatus: Kenya-S (1) 10·9
Indicator maculatus: Liberia (1) 46·5
Campethera nivosa: Liberia (1♂) 45·5; Ghana (1) 38·5; Gabon (1♂) 34·5, (1♀) 36·5
Psalidoprogne nitens: Gabon (1) 9·7
Psalidoprocne obscura: Ghana (1) 10·0
Pycnonotus barbatus: Ghana (2) 35·3±0·35 (35·0, 35·5); Gabon (1) 37·5; Gh + Ga (3) 36·0±1·29
Andropadis virens: Liberia (12) 24·9±2·79 (21·5–29·5); Ghana (3) 22·5±1·00 (21·5–23·5); Kenya-K (3) 23·2±3·51 (19·5–23·5): L + Gh + Kk (18) 24·2±2·77
Andropadis curvirostris: Ghana (2) 21·5±1·41 (20·5, 22·5); Kenya-K (3) 24·0±2·29 (21·5–26·0); Gh + Kk (5) 23·0±2·23
Andropadis latirostris: Liberia (27) 27·0±2·48 (23·5–32·0); Gabon (11) 27·6±1·82 (24·5–29·5); Kenya-K (22) 27·5±2·02 (25·0–30·5); L + Ga + Kk (60) 27·3±2·18
Andropadis mazukuensis: Kenya-K (1) 23·0
Chlorocichla simplex: Ghana (1) 46·5
Chlorocichla flaviventris: Kenya-S (1) 43·6
Criniger barbatus: Liberia (3) 45·2±0·60 (44·5–45·7)
Criniger chloronotus: Gabon (2) 48·0±2·12 (46·5, 49·5)
Criniger caluras: Liberia (4) 37·8±4·50 (33·2–43·0); Gabon (3) 28·0±3·96 (25·0–32·5)
Bleda syndactyla: Liberia (4) 50·5±5·52 (46·0–58·5); Gabon (6) 46·7±3·73 (43·5–51·5); Kenya-K (3) 46·8±3·78 (42·5–49·5); L + Ga + Kk (13) 47·9±4·36
Bleda eximia: Liberia (4) 50·3±0·86 (49·5–51·5); Gabon (4) 35·7±1·25 (34·5–37·5)
Bleda canicapilla: Liberia (2♂) 50·2±2·47 (48·5, 52·0); (1♀) 43·5; (3 unsexed) 42·7±6·00 (36·5–48·5)
Phyllastrephus fisheri: Kenya-K (2) 26·3±0·35 (26·0, 26·5); Kenya-S (8) 29·5±2·06 (27·1–32·6); Kk + Ks (10) 28·9±2·26
Phyllastrephus icterinus: Liberia (11) 20·8±1·99 (17·5–23·0); Gabon (9) 18·4±2·20 (15·5–22·5)
Phyllastrephus baumanni: Ghana (2) 29·0±2·12 (27·5, 30·5)
Phyllastrephus debilis: Kenya-S (5) 13·6±1·24 (11·9–15·1)
Nicator chloris: Liberia (1) 38·2
Laniarius barbarus: Ghana (2) 44·8±2·47 (43·0, 46·5)
Laniarius aethiopicus: Ghana (1) 61·5
Malconotus sulphureopectus: Ghana (2) 30·5±1·41 (29·5, 31·5)
Cercotrichas leucostictus: Liberia (1) 24·0
Cercotrichas quadrivirgata: Kenya-S (2) 22·8±2·33 (21·1, 24·4)
Alethe poliocephala: Liberia (8) 35·9±2·55 (31·0–39·0); Gabon (1) 32·5; Kenya-K (7) 28·4±1·21 (27·5–32·5); L + Ga (9) 35·5±6·98
Alethe diademata: Liberia (6) 33·5±1·78 (31·5-35·5); Gabon (3) 33·8±0·57 (33·5–34·5); L + Ga (9) 33·6±1·44

Stiphrornis erythrothorax: Liberia (2♂) 16·4±0·84 (15·8, 17·0); 3(♀) 15·8±0·75 (15·0–16·5); (7 unsexed) 15·8±0·87 (14·3–17·0); Gabon (2♂) 17·5±1·41 (16·5, 18·5); (1♀) 16·0; L + Ga (15) 16·1±0·97
Cossypha cyanocompter: Kenya-K (1) 26·5
Cossypha natalensis: Kenya-S (1) 32·1
Sheppardia cyornithopsis: Liberia (4) 16·8±3·31 (13·8–21·5)
Sheppardia aequitorialis: Kenya-K (4) 15·4±0·69 (14·5–16·2)
Sheppardia gunningi: Kenya-S (1) 15·9
Neocossyphus poensis: Liberia (4) 54·5±4·74 (47·5–58·0)
Neocossyphus fraseri: Liberia (3) 38·6±2·51 (37·0–41·5); Gabon (1) 32·5; L + Ga (4) 37·1±3·67
Trichastoma fulvescens: Liberia (5) 23·9±1·85 (21·0–26·0); Ghana (2) 28·5±2·82 (26·5, 30·5); Gabon (6) 24·8±2·25 (22·5–28·5); Kenya-K (1) 30·5; L + Ga (11) 24·4±4·12
Trichastoma rufipennis: Liberia (1) 25·5; Kenya-K (4) 20·3±0·96 (19·5–21·3)
Trichastoma albipectus: Kenya-K (2) 30·8±2·47 (29·0–32·5)
Trichastoma cleaveri: Liberia (2) 27·0±1·41 (26·0, 28·0); Gabon (4) 32·2±3·12 (28·5–36·0); L + Ga (6) 30·5±3·66
Trichastoma rufescens: Liberia (2) 36·3±2·47 (34·5–38·0)
Cisticola erythrops: Ghana (1) 13·7
Prinia leucopogon: Gabon (1♂) 14·0; (1♀) 10·7
Prinia bairdi: Kenya-K (2) 11·8±0·63 (11·3, 12·2)
Apalis flavida: Ghana (3) 9·0±1·00 (8·0, 10·0)
Bathmocercus cerviniventris: Kenya-K (2) 19·2±0·70 (18·7, 19·7)
Camaroptera brevicaudata: Liberia (2) 11·5±0·49 (11·1, 11·8); Ghana (1) 11·0; Kenya-S (3) 8·9±0·78 (8·4–9·8); L + Gh (3) 11·3±0·33
Camaroptera chloronota: Liberia (13) 11·2±1·00 (9·5–12·3); Ghana (1) 12·3; Gabon (1) 11·3; Kenya-K (2) 9·0±1·41 (8·7, 10·0); L + Gh + Ga (15) 11·4±0·95
Sylvietta virens: Ghana (2) 8·0±0·49 (7·6, 8·3)
Macrosphenus concolor: Liberia (1) 13·7
Macrosphenus kempi: Ghana (1) 14·5
Hylia prasina: Liberia (7) 11·6±1·31 (10·5–13·5)
Muscicapa olivascens: Liberia (2) 15·5±0·70 (15·7, 16·0)
Muscicapa sethsmithi: Gabon (2) 8·4±0·63 (7·9, 8·8)
Myioparus griseogularis: Liberia (2) 11·4±0·35 (11·2, 11·7)
Melaenornis edoloides: Ghana (1) 59·5
Platysteira cyanea: Liberia (2♂) 13·9±0·56 (13·5, 14·3); (1♀) 14·3; ♂ + ♀ (3) 14·0±0·46
Platysteira concreta: Liberia (2♂) 13·2±0·49 (12·8, 13·5); (2♀) 12·8±0·00 (12·8, 12·8); Gabon (1) 12·0
Platysteira blissetti: Ghana (1♂) 12·0; Kenya-K (3♂) 11·4±0·36 (11·0–11·7); Gh + Kk (4♂) 11·6±0·41
Platysteira castanea: Liberia (2♂) 12·6±0·77 (12·0–13·1); (1♀) 12·3; Gabon (1♂) 13·5; L + Ga (3♂) 12·9±0·77
Trochocercus nigromitratus: Liberia (2♂) 10·0±0·00 (10·0, 10·0); (1♀) 10·8; (2 unsexed) 9·1±0·28 (8·9, 9·3)
Trochocercus cyanomelas: Kenya-S (2♂) 10·4±0·28 (10·2, 10·6); (1♀) 9·9
Terpsiphone rufiventer: Liberia (10) 15·1±1·60 (12·5–17·3)
Terpsiphone rufocinerea (batesi): Gabon (1) 16·5
Anthreptes fraseri: Liberia (2♂) 10·7±0·91 (10·0, 11·3); Gabon (2♀) 11·7±0·77 (11·2, 12·3); (2 unsexed) 10·2±0·70 (9·7, 10·7)
Nectarinia cuprea: Ghana (1♀) 8·3
Nectarinia chloropygia: Liberia (2♂) 5·2±0·28 (5·0–5·4); Ghana (1♀) 5·0; L + Gh (3) 5·3±0·34
Nectarinia verticalis: Ghana (1♂) 13·7; (1♀) 13·5
Nectarinia olivacia: Liberia (5♂) 9·9±0·92 (8·5–10·8); (5♀) 8·1±0·32 (7·7–8·5); (6 unsexed) 9·4±1·10 (7·5–10·7); Gabon (5♂) 10·5±0·36 (10·0–11·0); (4♀) 9·2±0·51 (8·6–9·8); Kenya-K (2♂) 11·2±0·63 (10·7, 11·6); (2♀) 9·8±0·49 (9·5, 10·2); L + Ga+Kk (12♂) 10·4±0·78; L + Kk (7 unsexed) 9·4±1·02
Ploceus nigricollis: Ghana (3) 25·8±2·08 (23·5–27·5)
Ploceus cucullatus: Ghana (1♂) 32·5
Amblyspiza albifrons: Ghana (1♀) 31·5
Passer griseus: Ghana (2) 28·0±2·12 (26·5, 29·5)
Parmoptila woodhousei: Liberia (4♂) 10·5±0·41 (10·0–11·0); (2♀) 10·1±0·07 (10·0, 10·1); (6 ♂+♀) 10·3±0·38
Nigrita canicapilla: Ghana (1) 15·0

Nigrita bicolor: Ghana (1) 10·5
Spermophaga haematina: Liberia (3♂) 20·4±0·81 (19·8–21·3); (2♀) 21·8±1·90 (20·4, 23·2); Ghana (2♂) 23·5±1·41 (22·5, 24·5); (1♀) 24·5; Gabon (1♂) 21·5; (1♀) 23·5
Spermophaga ruficapilla: Kenya-K (6) 22·8±2·06 (21·5–25·5)
Lagonosticta senegala: Ghana (1♀) 9·8
Lagonosticta rufopicta: Ghana (2) 11·1±0·49 (10·8, 11·5)
Lagonosticta rubricata: Ghana (1) 10·2
Estrilda troglodytes: Ghana (1) 8·5
Estrilda atricapilla: Gabon (1) 7·8
Oriolus brachyrhynchus: Gabon (1) 45·5
Dicrurus ludwigii: Liberia (1) 46·0

Occurrence of the Madagascar Squacco Heron *Ardeola idae* in Central Africa

by A. Prigogine

Received 23 March 1976

After its breeding season, from October to March, the Madagascar Squacco Heron *Ardeola idae* disappears from its breeding grounds, migrating to other regions of Madagascar (Milon *et al.* 1973) or to Zanzibar[1] and to East and Central Africa, especially to Rwanda and Zaire. Chapin (1932) notes that it is present in mainland Africa 22 May–20 Oct, including specimens collected in East Africa.

Following a study of the populations of *Ardeola ralloides* in Central Africa (Prigogine in press), I had the opportunity to examine the fine series of *A. idae* preserved in the Musée royal de l'Afrique Centrale, at Tervuren, and I found that, in reality, its status in Central Africa is not so simple as previously accepted.

The collection at Tervuren includes 25 specimens collected in Zaire and in Rwanda at the following localities and dates:

Kivu (Zaire): Butembo (1 Jan), Kamituga (3, 5 and 20 June, 15 July, 3, 11 and 16 Sep), Lulenga (23 Nov), Lake Mokoto (30 Aug–2 specimens);

Kasai oriental (Zaire): Kabinda (11 July), Lusambo (25 May), Merode (3 May, 11 Aug);

Rwanda: Astrida (Feb, 4 May, May, June, 15 Aug, 15 and 20 Dec), Gisagara (Nov), Kigali (26 June), Kisenyi (no date).

As *A. idae* is known from Zambia (Benson *et al.* 1971), it is strange that it has only been encountered once in Shaba (at Moba—Chapin 1932). Yet on 19 July 1968, a native brought to me, at Lubumbashi, two *A. idae* captured near Kasenga, where these birds were said to be very numerous at that time. Chapin (1956) noted this heron at Tshibati, during the dry season from June to August, and Curry-Lindahl (1960) observed one individual 4–6 Feb near Astrida.

Schouteden (1953, 1966, 1968) has recorded birds, identified without doubt as *A. idae*, from Central Africa taken during the months in which breeding occurs in Madagascar, but all six are in first winter plumage (see table). There are indeed no specimens in the typical breeding dress anywhere recorded and this is surely proof that there is no breeding in Central Africa.

The following table shows the distribution by month of the specimens in the Tervuren collection, separately for adult birds and for young birds in first winter plumage:

	Month											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Winter plumage						2		4	1			
First winter plumage	1	1			4	3	1	1	2		2	2
Total	1	1			4	5	1	5	3		2	2

It may be concluded that some young birds remain in Central Africa and do not return to Madagascar in September or October. These young birds are easily confused in the field with the Palaearctic population of the Squacco Heron *Ardeola ralloides ralloides* which arrives in Zaire in November and remains in Central Africa until March. Thus it is possible that even during its off season *A. idea* may be commoner in Zaire and Rwanda than these few records suggest.

It may be noted that 7 adult Tervuren specimens have a wing length of 230–254 mm (mean 245 mm), longer than the wing length given in standard books (e.g. Mackworth-Praed & Grant 1970), but 17 specimens in first winter plumage are notably smaller, 211–244 mm (mean 227 mm).

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[1] C. W. Benson (*in litt.*) very kindly drew my attention to an *A. idae* specimen from Mafia Island, collected 22 Feb 1915, found quite recently in the British Museum (Meinertzhagen collection). It is in almost complete breeding dress except for very few winter feathers on the mantle. Thus it seems possible that a breeding population of *A. idae* exists also on Mafia Island.

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Earliest Record of the Torres Strait Pigeon *Ducula spilorrhoa* from Lord Howe Island, with comments on the subspecies *melvillensis*

by Murray D. Bruce

Received 14 April 1976

Roy Bell collected on Lord Howe Island for two years on behalf of G. M. Mathews and at The Pines on 14 October 1913 took a 'White Pigeon' which he had been after for some time and which was supposed to have been present for some four years (*per* J. L. McKean). The specimen (No. 611383) is an adult male Torres Strait Pigeon *Ducula spilorrhoa* in the collections of the American Museum of Natural History, New York. Rand (1941) briefly mentions the record in his revision of the species, but otherwise the record has been overlooked (e.g. by Fullager *et. al.* 1974). The record is the southernmost not only for the species but for the genus, the normal range extending only to eastern Queensland (Crome 1975), and this occurrence on Lord Howe Island must be regarded as accidental, though one might not have expected a vagrant to remain for four years. This pigeon has decreased greatly in numbers in the last 50 years and the likelihood of such vagrancy recurring is remote. Large flocks may still congregate in southern New Guinea (*cf.* Bell 1967: 70) and a ringing recovery 850 km from the original site was reported by Purchase (1975).

Rand & Gilliard (1968: 170) questioned whether *D. s. melvillensis* was distinguishable from nominate *spilorrhoa*. Storr (1973: 48) placed Queensland birds under *spilorrhoa*, thus following Peters (1937: 50). Condon (1975: 163), on the other hand, recognised *melvillensis*, as had Mayr (1941: 43), following Rand (1941: 4). Rand's differentiation of the subspecies (which differ on average only slightly in size) was primarily based on the degree of white or pale yellowish (*spilorrhoa*) and yellowish (*subflavescens*) to greyish (*tarara*) shading in the plumage. *Melvillensis* differs from *spilorrhoa* "in having the head distinctly gray-tinged" (Rand 1941: 5), a feature that is even more distinct in *tarara*. This grey tinge of the head is quite distinct in fresh skins (McKean *in litt.*), and is well marked in the AMNH material examined, although the grey in the plumage of some specimens appears attributable to dirt, stains and possible foxing. On this basis the subspecies *melvillensis* may be recognised; although it represents an intermediate stage in plumage characters, it is in fact the slightly smaller of the four subspecies:—

subflavescens (Bismarck Archipelago; Admiralty Islands);
nominate *spilorrhoa* (islands around New Guinea and parts of the New Guinea mainland);
melvillensis (S.E. New Guinea—Hall Sound region; northern Australia, with regular migratory movements between New Guinea and Queensland; Lord Howe Island);
tarara (south New Guinea—Merauke to Fly River).

I am grateful to J. L. McKean of the C.S.I.R.O., Australia, for assistance with information on Lord Howe Island records and material available to him in Canberra; Mrs. M. K. LeCroy of the A.M.N.H., New York, for assistance during my visit there; also J. F. Monk for helpful comments on the manuscript.

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The vocalizations of the Green Longtail *Urolais epichlora*

by L. G. Grimes

Received 6 May 1976

The Green Longtail *Urolais epichlora* is endemic to most montane forest areas of Cameroun, Eastern Nigeria and the island of Fernando Po. During an eight day stay on Mount Cameroun, beginning 30 December 1974, I recorded its song, contact note and some alarm notes, using a Phillips cassette tape-recorder (Model 2205) with a microphone (Phillips EL 1980/03) placed at the focus of a parabola (0·6 m in diameter). Sonograms of sections of these recordings were made using a Kaye Sonograph (Model 661A) operating in the wide band mode.

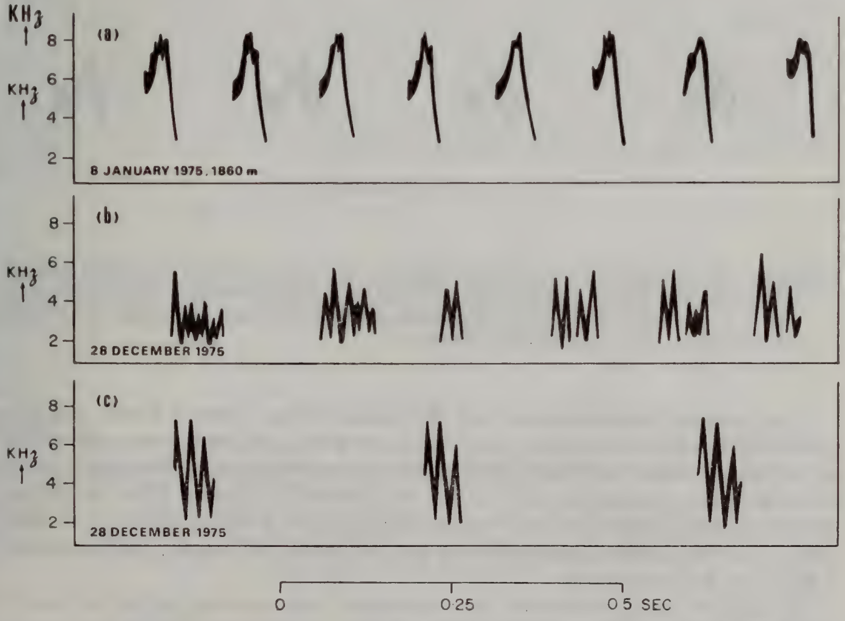

Figure 1. Diagrammatic sound spectograms of the contact note (a) and alarm calls (b & c) used by *Urolais epichlora*. Cameroun, Dec. 1974–Jan. 1975.

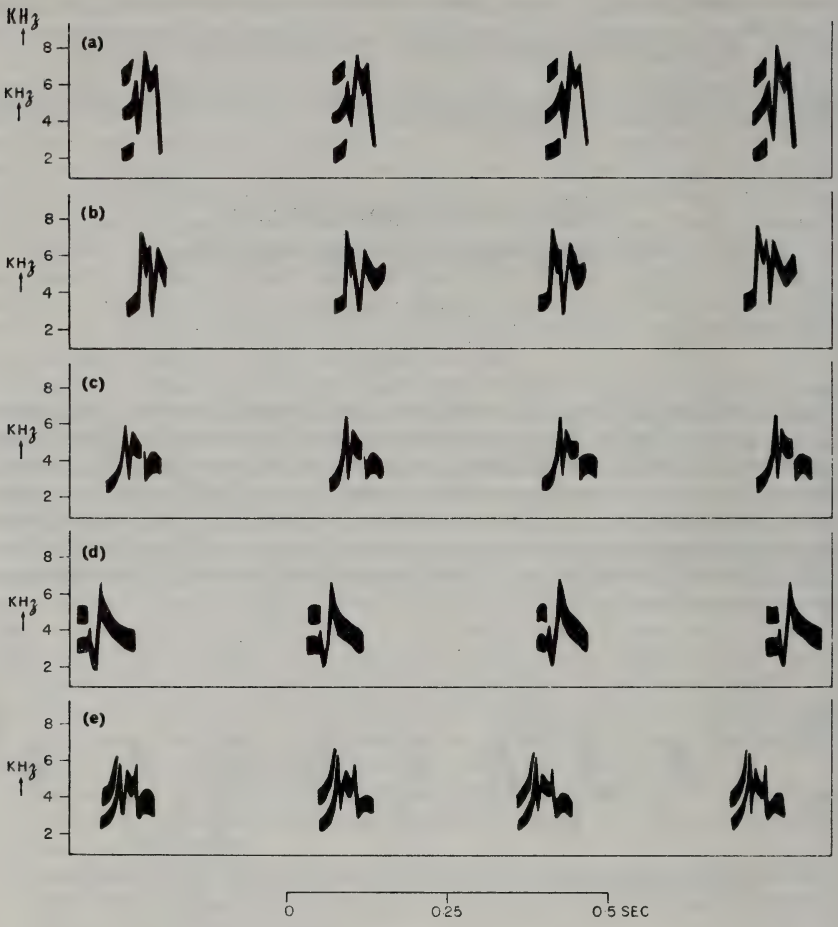

Figure 2. Diagrammatic sound spectrograms of the territorial song of *Urolais epichlora*. Those illustrated in (a) and (b) were obtained from the recordings of Chappuis (1974); those in (c), (d) and (e) from recordings made on 8 January 1975, probably of the same male, at 1860 m on Mount Cameroun.

The Longtail was common at all elevations in the montane forest, and also occurred as low as 1200 m in grassy thickets within the eucalyptus plantation near Buea. Adults with dependent young (small replicas of the adults) were located in the plantation and within the forest belt below 1830 m. Family parties located higher on the mountain contained birds with short tails, which may have been immatures or else adults in tail moult. Unfortunately I failed to find any nests.

During the first few days on the mountain I kept on hearing an unfamiliar shrill call (Fig. 1a) from birds hidden within the canopy. These were eventually identified as Longtails and as far as I could judge they used the call to maintain contacts with a foraging party. Sonograms of a number of separate recordings of this call showed that there was little variation in the frequency/time profile of the notes, and playback of the call produced no visible response in foraging Longtails. I also recorded in the eucalyptus plantation alarm calls (Fig. 1b, c) of adults when with dependent young: they contained a second harmonic not shown in the figure. Neither of these contact or alarm calls are on the disc produced by Chappuis (1974) nor appear to be mentioned in the literature.

The (assumed) male adult Longtail has a distinctive "chipping" song which consists of the repetition of the same note (Fig. 2) and appears to be mainly territorial in function. The frequency/time profile of the note is complex and differs between males and probably varies in a given male (Fig. 2c, d, e): but no birds were ringed for identification. The song is not of great intensity but once learnt could be picked up at distances of 60 m or more. At dawn and dusk on each day of my stay three males sang from separate canopies near my camp at Hut 1 (1830 m). Singing, however, also occurred during the day, either from a song perch within the canopy or as the male moved slowly through it. The response of the male to playback of its song or that of another male was most marked. Without fail it was possible to bring an unseen singing male from the canopy to ground cover where it would continue to sing in response, flicking its wings audibly often with its tail cocked over its back. Wing flicking and tail cocking were never noted when males were singing in the canopy and these are presumably intense forms of territorial display. Other Longtails foraging in the canopy would not respond to the playback and remained in the canopy. There was no suggestion, either from the tape recordings and sonograms or from field observations, that duetting is a part of the vocal repertoire.

White (1962) placed the Green Longtail in the genus *Prinia* and more recently Chappuis (1974) has suggested that vocally it has affinities with the genus *Apalis*, although no details of his reasoning are given. Until its nest is described it is probably best to leave it in the monotypic genus *Urolais*. It is hoped, however, that the vocalization data in this paper will be made use of as additional information in any future comparative study of its taxonomic position.

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Further on subspeciation in the Red-billed Oxpecker *Buphagus erythrorhynchus*

by P. A. Clancey

Received 28 June 1976

The subspecific variation of the Red-billed Oxpecker *Buphagus erythrorhynchus* (Stanley) of eastern and southern Africa from the Sudan, Ethiopia and Somalia, south to southeastern Angola and Natal and Zululand was last considered by Clancey & Lawson (1961) and Clancey (1962). The species was originally shown to exhibit subspecifically significant variation by Grote (1927), whose findings were adopted by Sclater (1930), but not by some later workers. Since 1962 two additional subspecies of this oxpecker have been proposed from southern Africa: *B. e. angolensis* Pinto, 1968, from Cuando-Cubango in southeastern Angola (Pinto 1968), and *B. e. bestiarum* Brooke, 1970, from southeastern Rhodesia (Brooke 1970). Brooke, in Benson *et al.* (1970), acknowledged the discreteness of *angolensis*, but the more recently proposed *bestiarum* has not yet been commented on. This last taxon was proposed on the basis of a relatively short series, mainly from Chipisi, *c.* 96·5 km east of Beit Bridge, near the confluence of the Bubye and Limpopo R., on the border between Rhodesia and the northern Transvaal. Chipisi, which is the type locality of the taxon, lies relatively close to those of *B. e. caffer* Grote, 1927: Palala R., northern Transvaal, a south bank affluent of the Limpopo R., which it joins at 23° 05′ S., 27° 53′ E., and *B. e. scotinus* Clancey & Lawson, 1961: Panda, Inhambane district, Mozambique, at 24° 02′ S., 34° 45′ E., just north of the lower Limpopo flood plain. From this it will be appreciated that the three names applicable to eastern southern African populations, namely, *caffer*, *bestiarum* and *scotinus*, are all loosely associated with the middle and lower reaches of a single river, the Limpopo.

Subspecifically significant variation in *B. erythrorynchus* is relatively slight, affecting general size, the colouration of the face, chin and upper fore-throat, levels of saturation over the upper- and under-parts, and the colour of the tail. Despite what has been stated at various times, individual variation in single populations is highly conservative, but elucidation of both this and geographically correlated variation is rendered difficult for the following reasons: (a) series from single localities are both rarely long enough and comprised in the main of adult birds, (b) the taxonomically significant variation is only partially shown by juvenile and immature birds, (c) the species is subject to much carbon and soil discolouration through contact with soiled pelage of its mammalian hosts, and (d) being exposed to the strong African sun most of the day, birds fade and wear rapidly. Foxing in museum skins is a slow process and not a major problem in the present species.

Variation in the Red-billed Oxpecker in southern and central Africa corresponds well to that exhibited by a whole range of similarly distributed polytypic passerines and small non-passerines: populations of dark and somewhat small-sized birds in the humid eastern lowlands and parts of the immediate interior, with paler, less saturated, elements replacing them in the drier (xeric) interior, while, in turn, size increases markedly in southern Angola, southwestern Zambia, northeastern South West Africa, Caprivi and northern Botswana. A re-examination of my (1962) arrangement of the populations into races in the light of the description of *B. e. angolensis* in 1968 and *B. e. bestiarum* in 1970, using now a series of just under 100 specimens, indicates the necessity of recasting the ranges of *B. e. caffer* and *B. e. scotinus*, with only three subspecies being admitted south of the ranges of the northern *B. e. erythrorhynchus* and *B. e. invictus*, making five subspecies in all for the species concerned.

B. e. bestiarum was described as differing from *caffer* in being generally paler, colder and duller, with the throat pale pinkish grey, the breast dull brown without the olive (wash) of *caffer*, and above grey-brown, without an olive wash. The pale pinkish grey throat was said to serve to distinguish *B. e. bestiarum* from all other races of the species. The *Type* of this taxon has not been available to me, but three paratopotypes from Chipisi taken at the same time cannot be distinguished from a series in comparable dress of *B. e. scotinus* from the lowlands of Mozambique taken in 1960, 1966 and 1971. Taken as a unit, all reasonably fresh adult *bestiarum* are as dark and suffused with olive over the upper-parts, dark over the face, chin and upper fore-throat, and deeply coloured below as a series of *scotinus* in the Durban Museum from Panda, Massinga and Rumbaçaça, localities in Sul do Save, Mozambique, and are taxonomically indistinguishable from this subspecies. In so far as the Chipisi specimens are concerned, I cannot discern the pale pinkish colour attributed to them in the original diagnosis, and actually find such specimens darker throated and breasted than fresh *B. e. caffer* from the western Transvaal (Northam) and a range of localities in eastern Botswana. From these findings I conclude that *B. e. bestiarum* will require to be merged with the earlier *B. e. scotinus*, the range of which will need to be adjusted from that laid down in 1962, namely, the humid coastlands of eastern Africa from Mozambique, north to Kenya, to read as follows: Mozambique, (? and northeastern Zululand), Rhodesia east of *caffer*, Zambia east of *angolensis*, Malawi, southeastern Zaire, Rwanda, Burundi, southern Uganda and Kenya south of *B. e. erythrorhynchus* and *B. e. invictus*.

B. e. scotinus differs from both *B. e. erythrorhynchus* (Stanley), 1814: northern Ethiopia, and *B. e. invictus* Clancey, 1962: Garissa, Tana R., Kenya, in being much darker over the face, chin and upper fore-throat, and more saturated throughout. In size it is similar to the nominate subspecies, but is much larger than the small-sized, pallid *invictus*.

B. e. caffer was erected largely on the basis of a size difference in comparison with the nominate race, the *Type* being from Palala R., in the western Transvaal. In my 1962 summary of the races I used this name for the interior populations ranging from the southern aspects of the Kenyan highlands south to the Transvaal and Natal. The present assessment of the variation now shows that *caffer* has a much more restricted distribution, and that many populations of *scotinus* were incorrectly assigned to it. Topotypical examples of *caffer* differ from the contiguous race, *scotinus*, in being colder and greyer dorsally, with the face, chin and upper fore-throat lighter and greyer (about the Light Drab of Ridgway (1912), pl. xlvi, *versus* greyish Buffy Brown (pl. xl) in *scotinus*), and the rest of the venter less saturated. With the elimination of the species from large areas of southeastern Africa through cattle-dipping, the use of insecticidal sprays and game eradication it is not easy to assess the former extent of the range of *caffer*, but nowadays it extends from the eastern aspects of the Kalahari, in Botswana, east to the northwestern Orange Free State, the Transvaal, and the low rainfall areas of northwestern Rhodesia (Wankie, Matetsi). In former times it extended well south of this over the Orange Free State and Natal, but has now all but disappeared from these provinces, though still present in some numbers in game reserves in northern Zululand, where, however, the birds appear to be nearer *scotinus* than *caffer*, but apparently showing characters of their own (darker fore-throat and breast, more ochraceous-buff belly, and with cinnamon wedging to the second and third outer rectrices), if the aged material available can be relied upon.

When Pinto named *B. e. angolensis* he compared his Okavango R., Angola, material with ten skins from Sul do Save, which he considered to represent *caffer*, but which were in fact *scotinus*, which latter taxon was not mentioned. *B. e. angolensis* was described as resembling "*caffer*" = *scotinus* in colour, differing in its greater size, even though the figures given in the original description: 121–136, *versus* 119–124 mm, show a considerable measure of overlap. However, as will be appreciated from the mensural data (Table I), the wing-length spectrum in adults of the present oxpecker lies between 5 and 8·5 mm, which indicates that Pinto's paratypical series of *angolensis* comprised several immature birds. My measurements of adults from the range of *angolensis* suggest that the size distinction separating *angolensis* and *scotinus* is in all probability more sharply defined than suspected by the original author, *angolensis* having wings 125–132, *versus* 116·5–125 in *scotinus* and 116·5–123·5 mm in *caffer*.

TABLE I.

The wing-length (mm) variable in *B. erythrorhynchus* populations occurring to the south of the ranges of nominate *B. erythrorhynchus* and *B. e. invictus*.

Population	*N*	*Range*	*Mean*	*SD*	*SE*
		B. e. ? subsp.			
Zululand	2	114, 116·5			
		B. e. caffer			
W. Transvaal, Botswana and N.W. Rhodesia	15	116·5–123·5	120·3	2·28	0·59
		B. e. caffer ≷ *B. e. scotinus*			
E. Transvaal	11	119–124	121·2	1·66	0·50
		B. e. scotinus			
S. Mozambique	12	118–124·5	120·4	2·29	0·66
Rhodesia	13	116·5–124·5	120·8	2·50	0·69
Zambia and Tanzania	7	118·5–125	121·8	2·01	0·76
		B. e. angolensis			
N.W. Botswana, Caprivi and S.W. Zambia	5	125–132	126·9	2·88	1·29

Compared with true *B. e. caffer* from the western Transvaal and eastern Botswana, *angolensis* differs in being more olive tinged above, less grey, darker and browner over the face, chin and upper fore-throat, slightly more saturated ventrally, and in having the wing-length in adult birds much greater. The range of *B. e. angolensis* is from Cuando-Cubango, Angola, and northeastern South West Africa, east to Caprivi, the Okavango Swamp region of northwestern Botswana, and Barotseland and the western part of the Southern Province of Zambia. Its influence can also be detected in the northwestern Rhodesian sample.

In the above discussion I have not taken into consideration the contentious name *Buphaga Africanoides* A. Smith, 1831: Natal, the availability of which was discussed by Clancey (1968, 1969) and Benson & Hall (1969). As stated in a footnote to *Bull. B.O.C.*, 89 (2) (1969): 38, this matter was duly submitted to the International Commission on Zoological Nomenclature at a time when the terms of Article 23 (b) of the *Code* were under critical review and immediately prior to the publication of Declaration 43, in which Article 23 (b) was repeated. In a letter dated 14 June 1971, the Secretary of the Commission, Mr. R. V. Melville, informed me that Smith's *africanoides* is a *nomen oblitum* in terms of the said Article, and that as its existence was made known prior to the adoption of Declaration 43 in December 1970 (I.C.Z.N. 1970), it can only be re-established as a valid name by the Commission exercising its plenary powers. In the light of Mr. Melville's other comments, and on account of the fact that a Natal population of this oxpecker now hardly exists, I have not felt it necessary to take the requisite steps to have Smith's long over-looked name validated.

To summarize: my 1962 revision of the species is adjusted in the light of the description of two additional subspecific taxa: *B. e. angolensis* (1968) and *B. e. bestiarum* (1970). *B. e. angolensis* is recognised, while *B. e. bestiarum* is merged with *B. e. scotinus*, the range of which is enlarged to cover the populations ranging from the southern aspects of the Kenya highlands, south to southern Mozambique. *B. e. caffer* is now interpreted as a dry country race, extending from the eastern Kalahari, east to western Rhodesia and the Transvaal, and with a former more extensive range to the southward.

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Agapornis swinderniana in Ghana

by D. W. Snow

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The Black-collared Lovebird *Agapornis swinderniana*, the only member of its genus confined to humid evergreen forest, is widely distributed in the Cameroun and Congo forest region and known from a few localities in Liberia about 2000 km to the west. The Liberian population, nominate *swinderniana*, differs in colour from the Cameroun race, *zenkeri*, having a much less bright and less extensive suffusion of red or orange below the black of the collar.

While examining specimens of *Agapornis* in the British Museum (Natural History) I found a specimen of *A. swinderniana* collected by Boyd Alexander, labelled "Sheramassi, Gold Coast Colony" and dated 10 February 1902. In colour it resembles specimens from Liberia, about 900 km to the west, except that the orange suffusion on the hind neck and breast is a good deal stronger and more extensive. In this it tends towards *zenkeri*. The ends of the flight-feathers have been cut cleanly off, as though with scissors, suggesting that the bird may have been in captivity. Boyd Alexander collected in the Gold Coast (Ghana) between September 1901 and May 1902, but not very extensively as he was engaged in military operations. He had earlier made a very thorough collection in the country. Details of his itinerary appear not to be known, but he was apparently moving slowly northwards between February and April. There is a specimen from "Gugu" collected on 6 February, then the "Sheramassi" specimen, and then none until 4 – 11 March, when specimens were collected at Kintampo (8° 06′ N, 1° 40′ W). On 18 April specimens were collected at Gambaga (10° 31′ N, 0° 22′ W). Boyd Alexander labelled these two latter localities "Gold Coast hinterland", whereas Sheramassi and Gugu were labelled "Gold Coast Colony".

For locating for me the probable position of Sheramassi I am indebted to Dr. Llewellyn Grimes, recently of the University of Ghana, who points out (*in litt.*) that Boyd Alexander was clearly using a phonetic spelling. There is no "sh" spelling in Ghana, but the sh sound is written "hy" or possible "hw". There is in fact a place called "Hweremasi" at 6° 46′ N, 1° 24′ W, between Kumasi and Mampong, in what would have been good forest in 1902. It seems very likely that this is where Boyd Alexander obtained his specimen, a deduction supported by the fact that there is a place called Agogo about 30 km to the east of Hweremasi, which may well be the "Gugu" where he collected a specimen four days earlier. Accordingly it is intended to show Hweremasi as a locality for *Agapornis swinderniana* in the *Atlas of speciation in African non-passerine birds*, now in preparation.

There is no obvious reason why *A. swinderniana* should be confined to a small area of forest in Liberia, since the Upper Guinea forest once extended continuously from Sierra Leone and Liberia east to eastern Ghana; but it is curious that it is apparently so rare or else very patchly distributed. It is also surprising that Boyd Alexander's specimen should have been overlooked for so long, since it was registered with the rest of his Ghana collections in 1936.

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Comments on the races of *Lybius melanocephalus* (Cretzschmar) in Ethiopia

by C. Erard

Received 3 June 1976

Urban & Brown (1971), relying on White (1965), give only two races of *Lybius melanocephalus* for Ethiopia: the nominate in the northeast, in the north of the Rift Valley, and in the southeast; and *L. m. stigmatothorax* (Cabanis) in the west and south, including the south of the Rift. In the material collected during various expeditions from the Laboratoire de Zoologie (Mammifères et Oiseaux) du Muséum National d'Histoire Naturelle, Paris, there are specimens of *L. m. blandi* (Phillips), which White (1965: 259) confines to "Northern Somalia". In fact *blandi* has been collected not only in the north at Run, 60 km northeast of Garoe (8° 48′ N, 48° 52′ E), but also by Roche in central and southern ex-Italian Somalia, near to Bugda Acable (4° 03′ N, 45° 10′ E) and Afmadu (0° 27′ N, 42° 05′ E) (Berlioz & Roche 1963, Roche 1975: 121).

In Ethiopia proper, Erlanger (1905: 491–492) collected 11 specimens which he assigned to *blandi*, in Arussi, Ennia-Gallaland, Gurra and Garre-Liwin. Further south he recorded *stigmatothorax:* ♀, Malka-Ree, Dawa River; ♀, Sidimun, near Bardera; 3♂♂, ♀, Kismayu. In fact, due to a lack of comparative material, the differences between the two forms were not well presented by Erlanger; he regarded them as conspecific, but nevertheless, in accord with the practice of many systematists of that time, as specifically distinct from *melanocephalus*. Thus he attached undue importance to the relative size of the beak and the presence or absence of a small patch of red on the centre of the chest. He also thought that speckling on the crown, chin and throat was connected with age, although he should have been aware from his considerable series of specimens that this was not so.

Reviewing Erlanger's material, Zedlitz (1915: 14–15) made the same mistake in attributing subspecific significance to characters which reflected merely individual variation. Neither he nor Erlanger appreciated that they were dealing with one race, namely *blandi*. If Zedlitz had been aware of the true characters of *stigmatothorax*, he would not have written:—"Wenn die Form *blandi* nicht schon bestände und von vielen namhaften Forschern anerkannt worden wäre, würde ich meinerseits keine Teilung befürworten", in assigning all Erlanger's specimens to that form. Thus this material remained improperly determined, with *blandi* believed to be restricted to that part of Somalia whence it had been described originally.

Fortunately Erlanger's specimens still exist in the Natur-Museum und Forschungsinstitut Senckenberg, Frankfurt-am-Main, and thanks to the kindness of Dr. J. Steinbacher we have been able to examine them. The black of the plumage of nominate *melanocephalus* is replaced by brown, and there is cream or pale yellow speckling (the latter colour in fresh plumage) on the crown, chin and throat, of the following which belong without doubt to *blandi*:—♂, Ali Dera (*c* 8° 45′ N, 42° E); ♀, Harro Ruffa (9° 24′ N, 41° 44′ E); ♀, Haroroba (8° 11′ N, 40° 32′ E); ♂, Huluko (6° 59′ N, 40° 44′ E); ♂, Kata, Mane (6° 32′ N, 40° 41′ E); ♂, Burka (6° 13′ N, 40° 54′ E); ♀, Harra-Ali (6° 08′ N, 41° 01′ E); 2♂♂, Darassum (5° 52′ N, 41° 08′ E); ♀, Malka-Ree, Dawa River (3° 59′ N, 41° 54′ E); ♂, ♀, Djeroko (3° 27′ N, 41° 15′ E); ♀,

Sidimun (2° 25′ N, 42° 05′ E); 3♂♂, ♀, Kismayu (0° 25′ N, 42° 31′ E). The first eight localities are in Ethiopia (provinces of Harrar and Bale), the others in the south of ex-Italian Somalia.

To the material collected by Erlanger can be added that obtained by J. Prévost, G. Jarry and the author in 1971, as follows:—3♂♂, 15–19 February, between 30 km west and 50 km southeast of Ghinir (7° 06′ N, 40° 40′ E), province of Arussi; ♂, 26 November, 45 km northwest of Bogol-Mayo (4° 34′ N, 41° 29′ E); ♂, 27 November, 36 km west-northwest of Filtu (5° 08′ N, 40° 35′ E); ♀, 1 December, near Debuluk (4° 15′ N, 38° 10′ E), 75 km south of Yavello. The last three localities are in the province of Sidamo. The final specimen is of interest in that it is intermediate between *blandi* and *stigmatothorax*. *L. m. stigmatothorax* is characterised by dark sooty brown on the head, back, chin and throat, instead of pale brown tinged chocolate as in *blandi*, and by an absence of speckling on the crown, chin and throat. The Debuluk specimen is close to *stigmatothorax* in colour, although the brown is slightly paler, and has yellowish white speckling on the anterior half of the crown and on the chin. It was adult, and the presence of speckling is not related to age. Furthermore, speckling in juveniles of *blandi* is more whitish, "cotton-like", as far as can be judged from a specimen collected by Erlanger at Ali-Dera.

Commenting on the specimen from Afmadu, Berlioz & Roche (1963) considered that, in view of the small red pectoral spot, it was intermediate between *stigmatothorax* and *blandi*. Such a spot is not peculiar to *stigmatothorax* since it is apparent in five out of 15 nominate *melanocephalus* and eight out of 25 *blandi* examined, exclusive of individuals showing a trace of orange-yellow.

Erlanger (1905: 492) attributed specimens from Malka-Ree, Sidimun and Kismayu to *stigmatothorax* on account of the red pectoral spot and especially the heavier bill. It is true that those from Kismayu are relatively large-billed, but this does not apply to the others. Robustness of bill is variable in specimens of all three forms examined.

The only specimen examined which is definitely intermediate between *stigmatothorax* and *blandi* is the one from Debuluk. Benson (1946: 28) emphasised that two males obtained at Yavello (4° 57′ N, 38° 08′ E) were blackish rather than brownish on the lower throat and down the centre of the chest, with the crown more blue-black, less brown-black, than in *stigmatothorax*. He assigned them to nominate *melanocephalus*, but only had material from Kenya for comparison. We collected 2♂♂ and 1♀ on 2 December 1971, 52 km west of Yavello. These are clearly *stigmatothorax*, although in the males the hind part of the crown and the upper mantle are more blackish than (Paris) specimens from Kenya. They are quite different from true *melanocephalus*, which has the crown, the cheeks and the upper mantle a dark black with blue reflections and the chin and throat dull black.

To conclude, *Lybius melanocephalus blandi* (Phillips) must be regarded as occurring in Ethiopia. Its distribution includes eastern ex-British Somaliland (*cf* Archer & Godman 1961), the southeast of Ethiopia (provinces of Harrar, Bale, Arussi and the southeast of Sidamo), and ex-Italian Somaliland as a whole. In northwestern Somalia and the northeast of the province of Harrar into the north of the Rift Valley in Ethiopia it is replaced by nominate *melanocephalus*, and in southern Ethiopia west of Yavello by *stigmatothorax*.

Acknowledgements: We express our thanks to Dr. J. Steinbacher, who kindly lent us the specimens collected by C. F. von Erlanger; and to our friend C. W. Benson, who has commented on and translated the text of this paper.

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Address: Muséum National d'Histoire Naturelle, 55 Rue de Buffon, 75-Paris (V^{e}).

Chaplin's Barbet *Lybius chaplini*: first description of eggs, a new host record for the Lesser Honeyguide *Indicator minor*

by J. F. R. Colebrook-Robjent & R. Stjernstedt

Received 13 April 1976

Chaplin's Barbet *Lybius chaplini* is to be treated as a full species (P. A. Clancey *in litt.*) in the forthcoming Atlas of African Non-Passerines to be published by the British Museum (Natural History). It is a relict species confined to the Southern and Central Provinces of Zambia. It is known to nest in holes in dead branches, but the eggs have never been described. Benson *et al.* (1971) give four breeding records, based on evidence other than eggs, one each for the months of August, September, October and February.

On 14 October 1975 J.C-R. and J. C. Sweetman investigated a nest hole of Chaplin's Barbet at Ringwood, 22 km southwest of Choma. The nest was 8 m up in the dead main trunk of an otherwise still living Sand Apple *Parinari mobola*, in a vlei with scattered trees, including figs. One of the pair left the nest tree before we reached it, but the incubating bird remained in the hole until it was cut open. Fig. 1 (drawn to scale) shows the long nest tunnel. The diameter of the entrance hole was 36 mm high and 40 mm wide. The back wall was approximately 20 mm thick at the narrowest point. The inside diameter of the nest chamber varied between 54 mm and 75 mm. The nest contained 3 eggs lying on fine wood dust, two of the barbet's and one of a honeyguide. The barbet's eggs are smooth-shelled long ovals with fine longitudinal ridges, measuring 24·8 × 17·8 (3·7 g) and 24·6 × 18·0 mm (3·9 g). They contained large embryos, but with sufficient yolk to see that it was of a deep orange-yellow characteristic of eggs of this family. The honeyguide's egg is glossy and rounded at both ends and measures 22·2 × 16·6 mm (2·9 g). It contained a very large embryo which would have hatched within 36 hours, showing the vicious bill hooks as illustrated on Plate 5 in Friedmann (1955). This egg is too small to be that of a Greater Honeyguide *Indicator indicator*. It cannot be the egg of a Scaly-throated Honeyguide *I. variegatus* as this habitat is quite unsuited to it and according to Benson *et al.* it is entirely absent from the Southern Province plateau. The egg size and barbet host indicates that it is referable to the Lesser Honeyguide *I. minor*, a species of frequent occurence in the Choma area.

Benson *et al.* give only one breeding record (September) for the Lesser Honeyguide, evidently referring to an unaccompanied juvenile as no host species is given.

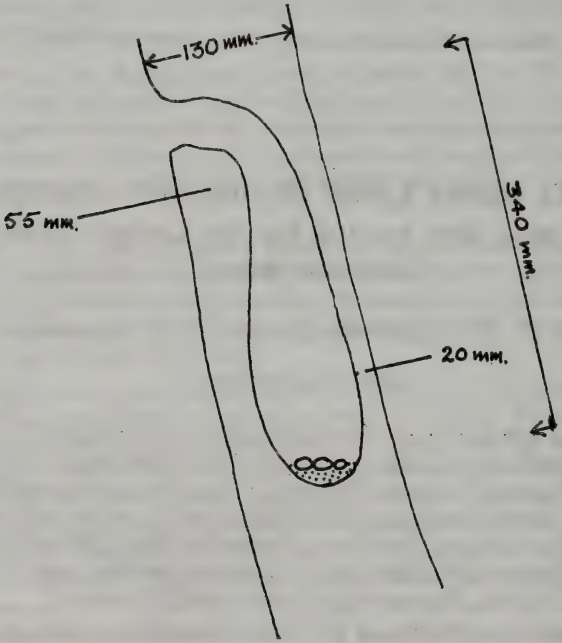

Figure 1: Cross section of Chaplin's Barbet *Lybius chaplini* nest hole (to scale).

Mackworth-Praed & Grant (1962) state that the call is unrecorded, although Winterbottom (1932) had described it as "a loud, cackling sound, suggestive of demoniacal laughter, and quite unmistakable". On 29 April 1974 R. S. recorded on tape the call of this species at Muckleneuk, near Choma. Certainly it is unmistakable, and may be described as a loud, strident, ratchet-like noise, harsh and high-pitched. There was a party of four individuals in a fig tree, probably only two of them contributing vocally and simultaneously each at a slightly different speed and pitch, e.g. bird "A" at *c.* 10 beats per second, bird "B" at *c.* 16 beats per second (and higher pitched). Sometimes one or the other gave its series of notes in "bursts" rather than in an even series, e.g. 8 groups per second, each group being of three notes. In the same tree were five Black-collared Barbets *L. torquatus* which also broke out into territorial song-calls from time to time. There seemed to be a certain amount of inter-specific aggression between the two parties, which helps to confirm the statement in Benson *et al.* that these two species must be in competition.

Acknowledgement: We are most grateful to C. W. Benson for improving a preliminary draft of this paper and for drawing our attention to the note by Dr. J. M. Winterbottom.

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Address: Musumanene, P.O. Box 303, Choma, Zambia.

IN BRIEF

(a) The first recorded nest of the Pink-breasted Lark *Mirafra poecilosterna* (Reichenow)

The Pink-breasted Lark *Mirafra poecilosterna* is recorded in Mackworth-Praed & Grant (1955: 20–21) as "breeding in northern Guaso Nyiro, Kenya, March" and "in South Abyssinia (breeding condition), March". There are no other records known except of two young birds, of which P. L. Britton collected one (now in the National Museum, Nairobi), soliciting attention or food, near Wamba, Samburu District, Kenya on 31 July 1971.

On 12 December 1975 I found a nest of this species containing two eggs, near Irima Hill about 12 km north of Voi in Tsavo National Park (East), Kenya. The nest was under a *Bauhinia taitensis* bush 0·3 m high and *c* 5 m from a dirt road, surrounded by fairly dense bushes, mostly *c* 2 m high. The nest was simply a depression in the red sandy soil lined with dry grass. The eggs were pale grey covered fairly evenly with chocolate-brown spots. On 19 December the nest was found to be empty.

I have another five records from Tsavo East which imply breeding—one of a pair copulating, one of a bird carrying food and three of birds carrying nest material. All were in November–December except one in April. In Tsavo these are months when rain can be expected.

2 May 1976 Peter C. Lack

Reference:
Mackworth-Praed, C. W. & Grant, C. H. B. 1955. Birds of Eastern and North-Eastern Africa. Vol. 2. Longmans, Green and Co., London.

Address: Tsavo Research Project, P.O. Box 14, Voi, Kenya.

(b) The name of Eleonora's Falcon

A current practice of systematists (e.g. Vaurie 1965) is to cite the provenance of *Falco eleonorae* as "Géné, 1839, Rev. Zool., p. 105. Sardinia". This contains a trivial error in that the author's name was Gené (single accent); but the matter goes further than that. The publication cited was not by Gené himself but was an anonymous news-item based on his exhibition and naming of a specimen, sent to him from Sardinia, at a meeting of the "Academie Royale de Turin" earlier in the year; the author's own paper appeared in the proceedings in 1840. This "leak" has unfortunately scooped the priority; moreover it is inaccurate both in introducing the misspelling of the author's name and in giving the date of the meeting as 1829 (making one look for a publication in or soon after that year, instead of 1839). The British Museum Catalogue (Sharpe 1874) cites the 1840 as well as the 1839 reference—a very desirable practice where the prior publication is not the definitive one. Vaughan (1961), in his comprehensive paper on the species, had these facts correctly. It is of curious interest that the name was explicitly given in honour of Eleonora d'Arborea (d. 1404), a heroine of Sardinia's struggle for independence, because she had promulgated a law protecting goshawks and falcons at their nests.

24 June 1976 A. Landsborough Thomson

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Address: 42 Girdwood Road, London, SW18 5QS.

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Bulletin of the
British Ornithologists' Club

BRITISH [illegible]

Edited by
Dr. J. F. MONK

Volume 96 No. 4 December 1976

FORTHCOMING MEETINGS

Tuesday, 18 January 1977 at 6.30 p.m. for 7 p.m. at the Goat Tavern, 3 Stafford Street, London, W.1 (between Old Bond Street and Albermarle Street, nearest underground station Green Park). *Dr. Peter Ward will speak on Palaearctic migrants in Nigeria.* Those wishing to attend must send a cheque for £2·30 per person to the Hon. Secretary, with their acceptance on the enclosed slip.

Tuesday, 15 March 1977 at 6 p.m. in the Lecture Theatre at the British Museum (Natural History), Cromwell Road, London, S.W.7. *Mr. J. M. Forshaw*, the author of the well-known monograph on parrots, *will give a talk on the ecology of parrots in Australia* and their adaptations to changing environments, with coloured illustration. Supper will follow at 7.15 p.m. in the Conversazione Room. Members wishing to attend must inform the Hon. Secretary by Thursday, 10 March 1977 and send him at the same time a cheque for £2·70 per person for the cost of supper (including wine or soft drinks).

PLEASE NOTE THAT THIS MEETING IS AT 6 p.m.

This meeting is being held jointly with the International Council for Bird Preservation (British Section).

Tuesday, 3 May 1977 at 6.15 p.m. for 6.45 p.m. at the Senior Common Room, South Side, Imperial College, South Kensington (entrance in Princes Gardens, S.W.7, off Exhibition Road). *A symposium on Asiatic Birds*, at which the speakers will include Lord Medway on Migrants in Malaysia, Mr. M. W. Woodcock on the Indian Avifauna and Mr. I. C. Orr on Ornithology in China.

Tuesday, 19 July 1977 at 6.30 p.m. for 7 p.m. at the Goat Tavern, 3 Stafford Street, London, W.1, *Mr. Stanley Cramp* on *The Birds of the Western Palaearctic* (Vol. I of which it is hoped will be published in May 1977).

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Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 96 No. 4 Published: 20 December 1976

The seven hundred and second Meeting of the Club was held at the Senior Common Room, South Side, Imperial College, London, S.W.7 at 7 p.m. on Tuesday, 21 September 1976.

Chairman: Professor J. H. Elgood: present 17 members and 10 guests.

Dr. M. P. Harris gave an illustrated talk on Puffins on St. Kilda, with special reference to their fluctuations in numbers, both there and at other breeding colonies in the British Isles.

The seven hundred and third Meeting of the Club was held at the Senior Common Room, South Side, Imperial College, London, S.W.7 at 7 p.m. on Tuesday, 16 November 1976.

Chairman: Professor J. H. Elgood: present 16 members and 11 guests.

Dr. H. N. Southern spoke on A population of Tawny Owls. He discussed relationships between the Tawny Owls at Wytham Wood, Oxford, and their prey and the changes there in size of breeding population. He illustrated his talk with slides and played tape recordings showing that individual male Tawny Owls could be identified by voice alone.

The duets of *Laniarius atroflavus*, *Cisticola discolor* and *Bradypterus barratti*

by L. G. Grimes

Received 6 May 1976

When Thorpe (1972) reviewed the occurrence of duetting in birds there were no recordings, only verbal descriptions, of the duets of three species which occur on Mount Cameroun (4095 m): the Yellow-breasted Shrike *Laniarius atroflavus*, the Brown-backed Warbler *Cisticola discolor* (Serle 1950, 1965), and the East African and South African races of the Evergreen-forest Warbler *Bradypterus barratti* (Vincent 1935, Moreau 1941). During a stay of eight days in the montane forest, beginning 30 December 1974, I tape-recorded the duets of all three species, using a Phillips cassette tape-recorder (Model 2205) with a microphone (Phillips EL 1980/03) placed at the focus of a parabola (0·6 m in diameter). Sonograms of sections of these recordings were made using a Kaye Sonograph (Model 66IA) operating in the wide band mode. For comparative studies I made sonograms of the duets of relevant species using the published recordings of Chappuis (1974).

RESULTS

The **Yellow-breasted Shrike** *Laniarius atroflavus* was located at all altitudes within the montane forest. Duetting was regularly heard each day in specific areas. In a wooded ravine at 1900 m just above Hut I (1830 m) these duetting bouts probably always involved the same pair, but no birds were ringed for identification, and the main function of duetting appeared to be territorial. Some of the longer duet sequences were obtained either by playback to a pair of a recorded duet, either their own or that of another pair, or when a second pair was present. Birds duetting in the canopy, often in sight of each other, would invariably approach the tape-recorder on hearing the playback and continue to duet. A similar response to playback of duets occurs in *L. barbarus* and *L. erythrogaster* (Thorpe 1972). In one series of *L. atroflavus* duets, with both birds on the same side of the tape-recorder, the mean reaction time was 145±10 (sd) msec and the mean time interval between duets was 4·45±0·12 (sd) sec.

The frequency/time profile of the first component of a *atroflavus* duet invariably had the inverted U profile shown in Fig. 1. The general lack of variability in its profile is in marked contrast to the variability found in the duets of *barbarus* and *erythrogaster* (Thorpe 1972). The second component (Fig. 1) is a single "clicking" note described by Serle (1965) as "chook", and is very similar to that given by *barbarus*, although in *barbarus* two or three such notes are added in response to the first component. It is, however, quite different from the response of *erythrogaster*, which is described as a prolonged snarl in which the frequency range is smaller than in the other two shrikes (Thorpe 1972: 112).

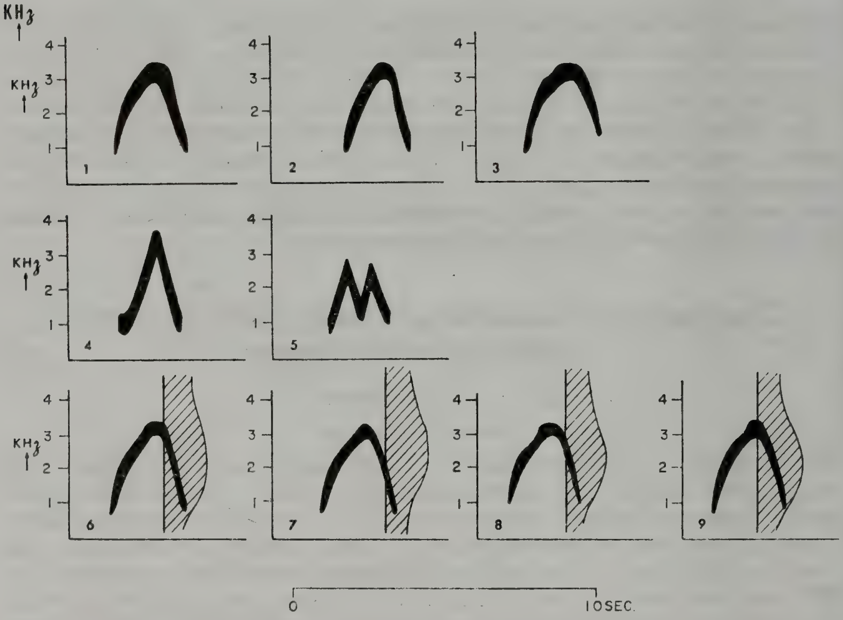

Figure 1. Diagrammatic sound spectograms (1–5) of the first component and (6–9) of the complete duet of *Laniarius atroflavus* (male? dark, female? hatched. 1–5 are taken from separate duet sequences and 6–9 from one duet sequence.

The **Brown-backed Warbler** *Cisticola discolor* was the most vocal of the birds encountered on the mountain, and duetting was also heard below the forest belt, in grassland near Great Sopo (850 m). Pairs were breeding at all elevations within the forest. Territorial counter duetting between pairs was frequent and regularly occurred in the same locations day after day so that territorial boundaries were easily traceable. All duets recorded were in response to either duets of neighbouring pairs or playback of a recorded duet. After playback the birds approached within a few metres of the tape-recorder and duetted, and this was often accompanied by audible wing flapping by both birds, more strenuously so by one (male?), which also bobbed up and down. Whenever one bird began its duet theme the second bird, if separate from it, would fly to the first before joining in the duet; duetting at a distance with the birds out of sight of each other was not recorded. This coming together of the two birds has been noted in *C. nigricolis* and *C. hunteri* (Thorpe 1972).

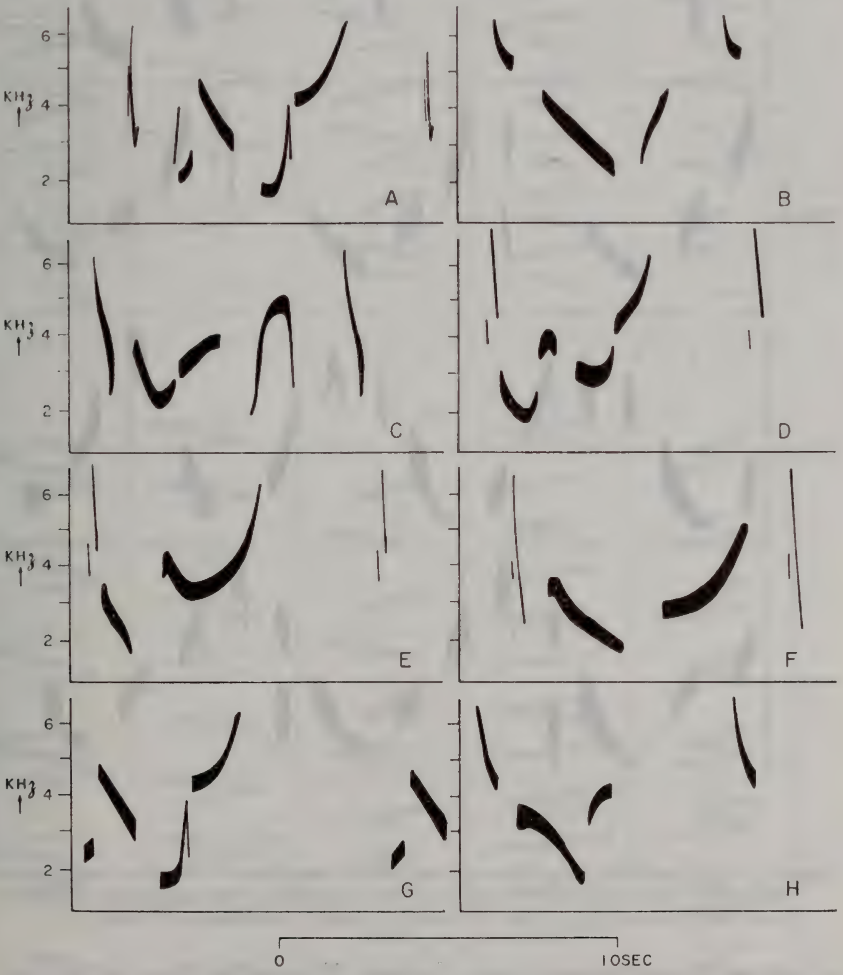

Figure 2. Diagrammatic sound spectograms of eight themes (A–H) used as the first component (? male) in 31 duet sequences of one pair of *Cisticola discolor* recorded in the eucalyptus plantation above Buea, 28 December 1974. The beginning of the next theme in the duet sequence is included in each diagram.

Because of slight differences in the timing of the two components of a single duetting pair it was possible unambiguously to identify the notes of each bird by comparing sonograms of two or more sections of a duet. Each component (Figs. 2, 3) consisted of the regularly spaced (timed) repetition of a phrase (consisting of a series of notes). Whereas the phrase of one bird (male?) carried considerably from one duet to the next (Fig. 2), the same variations re-occurring in later duets, the phrases of the second bird were much more regular and varied little between duets (Fig. 3). Analysis of

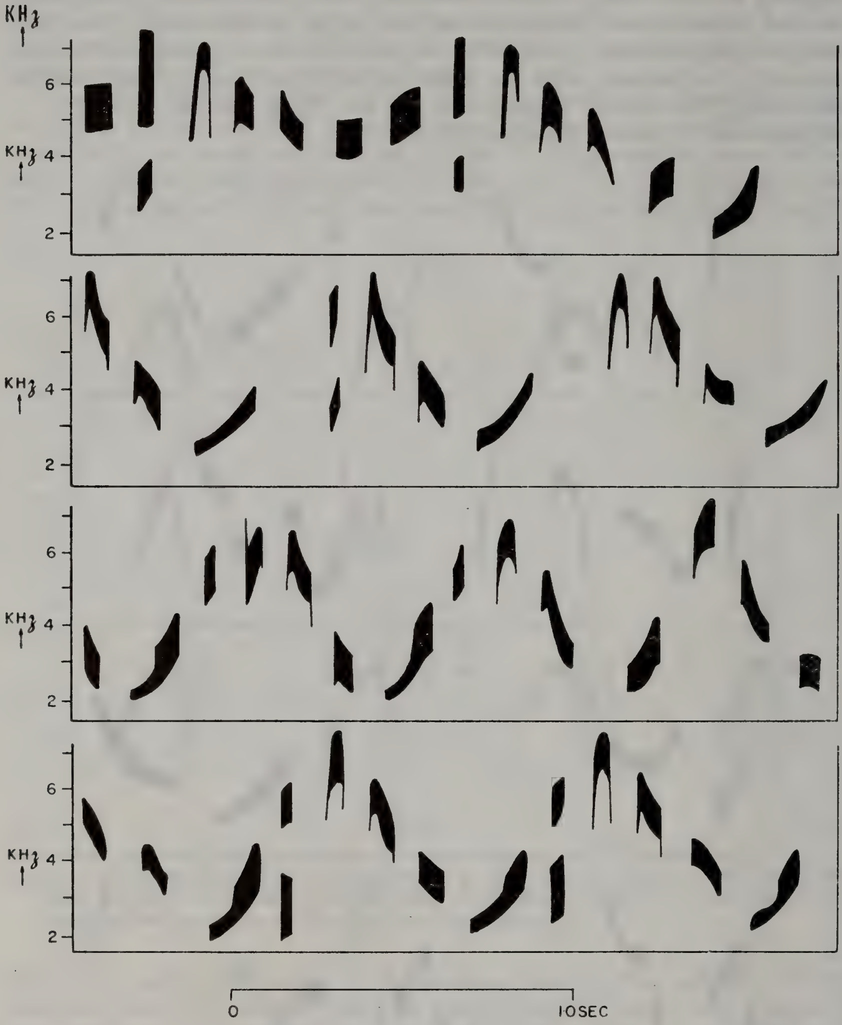

Figure 3. Diagrammatic sound spectograms of four examples of the second component used in 31 duet sequences of *Cisticola discolor* recorded in the eucalyptus plantation on 28 December 1974 (see Fig. 2). Each line shows a continuous recording.

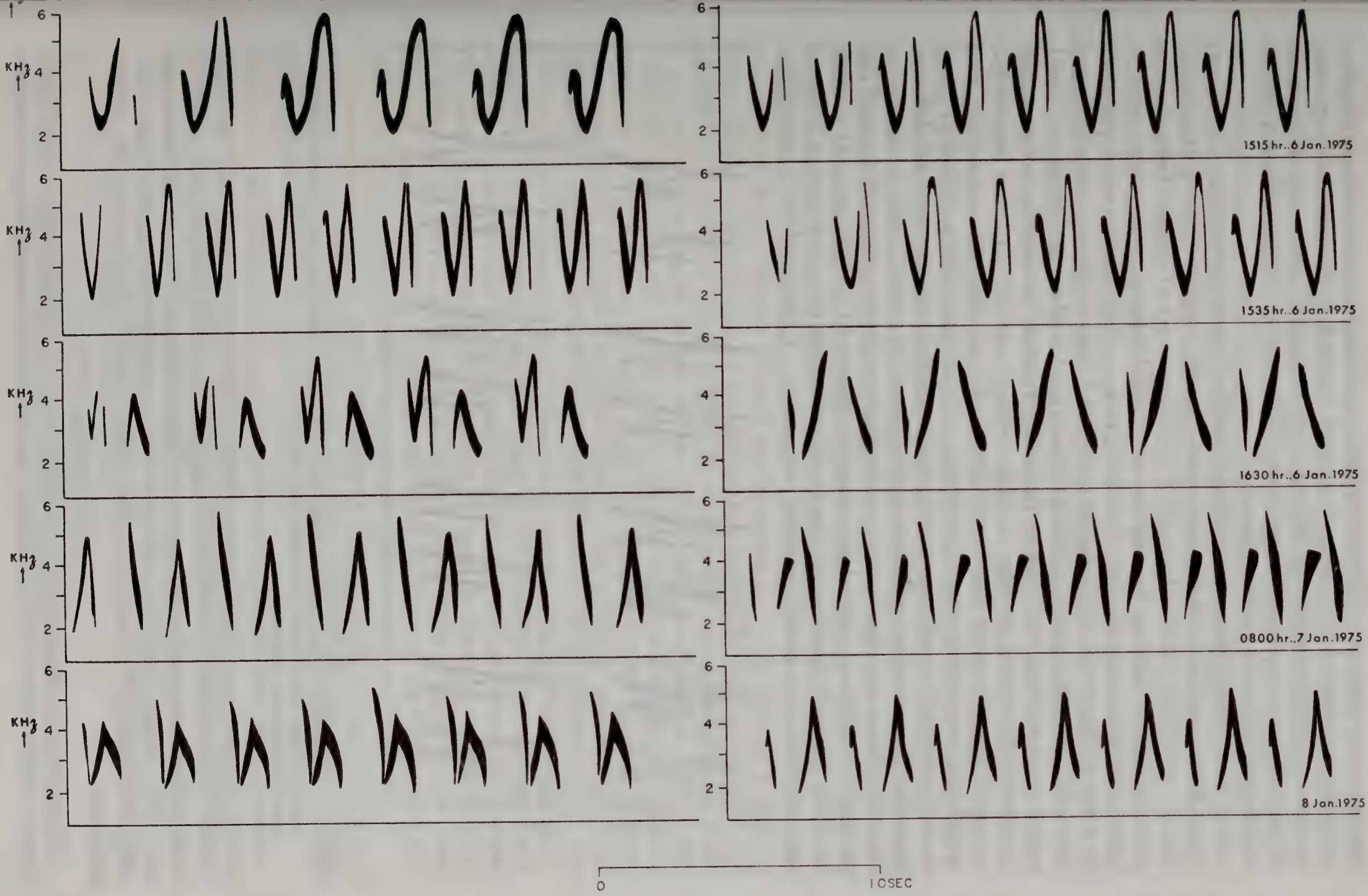

Figure 4. Diagrammatic sound spectograms of the song sequences used by two male *Bradypterus barratti* singing in response to one another. The birds were singing from the same patches of thicket daily and were assumed to be the same males each day.

duets of other pairs of *C. discolour* which I recorded on the mountain together with those recorded by Chappuis (1974) showed that whereas the phrases of the first component were different for each pair, none coinciding with those in Fig. 2, the second component of the duet and its oscillatory nature varied little between duetting pairs.

The male **Evergreen-forest Warbler** *Bradypterus barratti* was also very vocal during my stay on the mountain, usually singing from within dense thicket, creeping slowly through it between bouts of song. Males in song were invariably singing in response to neighbouring conspecifics and the function of the song appears, therefore, to be mainly territorial. A playback of a song always brought the singing bird nearer the tape-recorder, and resulted in further song. Serle (1965: 91) describes the song as "loud, explosive in quality, unvaried in pitch and rhythm" consisting of a number of repetitions of one phrase "o-chip, o-chip, o-chip", etc. On several occasions I noted aurally that one warbler was singing the same song as a neighbour, only to be proved wrong by the sonograms. These (Fig. 4) show that a male has a large number of song types which are quite different from those used by neighbours singing in competition. Other Evergreen-forest Warblers recorded at various heights on the mountain all showed this variability which suggests that a complex system of dialects exist. It is while the male sings his loud song that the female may join in a duet, adding in contrast a series of weak whistling notes (Fig. 5), only audible within a few metres of the singing bird. As the pair are close together when they duet and visible to each other it is difficult to suggest a function for the duet, unless it is linked to courtship. It is hoped that this vocalization data on the Cameroun race, (*B. p. lopezi*), will be made use of in a comparative study of the other allopatric races, *B. b. mariae* in East Africa and *B. b. barratti* south of the Zambesi.

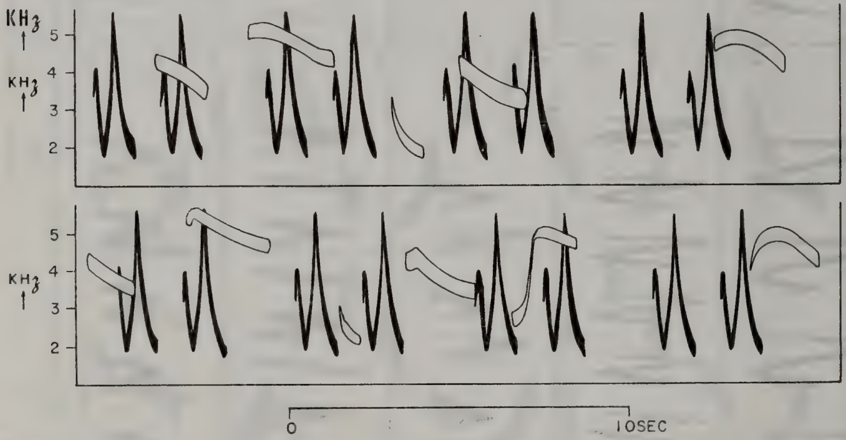

Figure 5. Diagrammatic sound spectograms of the duet structures of *Bradypterus barratti* recorded near the forest-grassland boundary at 2100 m on Mount Cameroun. Male dark, female open symbols.

DISCUSSION

When Hall & Moreau (1970) highlighted the uncertainties in the taxonomic relationships of some African passerines they based their conclusions on their distribution patterns and morphological data, and it is only recently that data on vocalizations have become available for use in taxonomix studies (Chappuis 1974, Grimes 1974). Lanyon (1969) has indicated the use of such data but the limitations and need for care in interpreting the data has been emphasised by Smith (1970) and Nottebohm (1975). In particular, if the species being compared learn their duets and are allopatric it would not be surprising if their duets were different in structure even though the species were closely related.

The four montane cisticolas of Africa (*C. chubbi*, *C. discolor*, *C. nigricolis* and *C. hunteri*) duet and are all allopatric. Lynes (1930) considered them as four species, White (1962) regarded them as conspecific, and Hall & Moreau (1970) considered three were conspecific and *hunteri* a distinct species. The complexity of the duet patterns of individual *discolor* and the variability found within the Cameroun mountain population suggest that the duets are learnt. Some variability also has been found in the three other cisticolas (Thorpe 1972). Differences in the duet structures of the four allopatric species might, therefore, be expected and indeed do occur; typical duets of *chubbi*, *nigrocolis* and *hunteri* are illustrated in Thorpe (1972). Whereas the duets of *nigrocilis* and *hunteri* have little in common and are quite distinct from those of *chubbi* and *discolor*, which latter two have close similarities. This prompted Chappuis (1974) to suggest that *chubbi* and *discolor* were conspecific, but this requires confirmation by further field experiments (Smith 1970): recently R. Sternstedt (*in litt.*) found that *discolor* showed no response to a playback of a duet of *chubbi*. Because of these facts I am inclined to follow Lynes (1930) and keep all four as species, but agree with Hall & Moreau (1970) that placing them in a superspecies *hunteri* would indicate their close relationship.

Hall & Moreau (1970) erect the superspecies *Laniarius barbarus* and include within it seven essentially allopatric shrikes (*barbarus*, *erythrogaster*, *atrococcineus*, *mufumberi*, *atroflavus*, *ruficeps*, *luhderi*). All duet but only the duets of *barbarus* and *erythrogaster* have been studied in any detail (Thorpe 1972). The present study indicates that the duet structure of *atroflavus* has closer similarities to that of *barbarus* than *erythrogaster*, although the first component of a *atroflavus* duet lacks the variability found in those of the other two shrikes. The latter suggests that auditory signals are less important to *atroflavus* than to *barbarus* and *erythrogaster* and probably reflects the differences in their habitats; *atroflavus* living mostly in the open canopy of the montane forest whereas the others are birds of low dense thicket.

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Additional notes on the status of *Eos goodfellowi*

by D. T. Holyoak

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In an earlier note (Holyoak 1970) it was argued that the two living specimens from which Ogilvie-Grant (1907) described *Eos goodfellowi* were probably juveniles of *Eos bornea*, as suggested previously by Siebers (1930), and apparently overlooked by Peters (1937). Walters (1975) has recently argued that *E. goodfellowi* was unlikely to have been based on juveniles of *E. bornea* because the birds seen by Ogilvie-Grant were said to have been obtained on Obi in the Moluccas, where *E. bornea* has not been recorded, and because he considers that the coloration described by Ogilvie-Grant differs from that of juveniles of *E. bornea*. He also comments that "To accept *E. goodfellowi* as merely a juvenile of *E. bornea* would require that one accepted the existence of a hitherto unknown population of *bornea* on Obi", and speculates that *E. goodfellowi* might be an "old" (*sic*) and possibly extinct montane representative of the genus on Obi; although he later obscures these arguments by also suggesting that the specimens obtained by Goodfellow might possibly have been inter-island vagrants.

There is no evidence that the specimens originated in Obi nor that they were in fact "captured" on Obi as stated in my earlier paper: indeed, the most likely thing is that Goodfellow purchased two live bright red, caged parrots on a short visit to Obi. However, inter-island trade was well established by then and the origin of Goodfellow's birds must be quite uncertain if they were cage birds, although if so, they are more likely to have been juveniles.

Examination of the same three specimens in the collection of the British Museum (Natural History) on which I commented (1970) suggests to Walters that *E. goodfellowi* is not the juvenile of *E. bornea*. Ogilvie-Grant (1907) described *goodfellowi* as resembling *E. bornea* (then known as *E. rubra*), but having lavender-blue ear-coverts and the back and thighs purplish-blue, one bird having the feathers of the middle of the belly deeply edged with blue, the other lacking any blue on the belly. I have recently located additional specimens of *E. bornea* showing some or all of these characters in the American Museum of Natural History (AMNH, New York) and the Museum National d'Histoire Naturelle (MNHN, Paris).

The relevant specimens and their characters may be enumerated as follows:

AMNH 616962. Amboina, unsexed. Lavender-blue ear-coverts; deep lavender-blue thighs; a few lavender-blue marks on tips of belly feathers;

AMNH 616945. Buru, unsexed. A little lavender-blue on ear-coverts; some lavender-blue on thigh feathers although these are mostly missing; lavender-blue feather tips in centre of belly;

AMNH 616948. Buru, ♀. Lavender-blue in feathers of ear-coverts; some lavender-blue in feathers of thighs and centre of belly;

AMNH 616950. Buru, ♂. Faint lavender-blue wash on feathers of ear-coverts; much lavender-blue on thigh feathers and in centre of lower belly;

AMNH 616999. Little Key, Key Is. immature ♂. Dull lavender-blue ear-coverts; much lavender-blue on thighs and in centre of lower belly;

AMNH 616995. Little Key Is. immature ♂. Entirely lavender-blue ear-coverts; middle of lower belly and thighs almost entirely lavender-blue.

BM(NH) 1910.12.28.101. Kei Is. ♂. Distinct lavender-blue ear-coverts; scattered feather tips of violet-blue on thighs and belly.

BM(NH) 1913.6.10.47. Amboina, ♀. Some lavender-blue on ear-coverts and a little violet-blue on thighs and belly;

BM(NH) 1889.1.20.155. Labelled "Aru Islands", but presumably in error, unsexed. Faint lavender-blue tips to feathers of ear-coverts and scattered violet-blue feather tips on thighs and belly;

MNHN *ex* Museum Boucard, Coll. Wallace. Buru, ♂. One tiny blue feather tip in ear-coverts; extensive lavender-blue on feather tips of thighs and lower belly;

MNHN *ex* Coll. H. O. Forbes, no. 639. Buru, ♂. Lacks blue on ear-coverts, but has scattered blue tips to feathers of thighs and lower belly;

It is impossible to deduce how Ogilvie-Grant was able to suppose that lack of blue on the belly could decide maturity in *goodfellowi* (so that Walters' comments are irrelevant on this point), especially as the relative extent of blue on the belly and ear-coverts varies considerably in the above specimens. AMNH 616962 has much blue on the ear-coverts but little on the belly, whereas several others have the opposite. Walters emphasises that the three BM(NH) specimens have "a great deal of brown on the belly", which "is charactersitic of juvenile *Eos*", and "Had there been any brown on the live *E. goodfellowi* it seems unlikely that Ogilvie-Grant would have failed to notice it and realise that this signified immaturity". The dull brown colour of juveniles is derived from the bases of the belly feathers and is only conspicuous when the red or blue feather tips are worn or when the plumage is disarranged. The brown would probably be less conspicuous in a well-groomed live bird than in most skins, but is anyway inconspicuous in some skins (e.g. AMNH 616962).

It is not impossible that *E. goodfellowi* is a montane endemic of Obi, since the birds of Obi are not very well known, but the only island where *Eos* is represented by both montane and lowland forms is Seran (Ceram) which is a much larger island than Obi and with much more extensive montane forests. A more compelling objection however is that the known presence of two large lories on Obi, *Eos squamata obiensis* and *Lorius garrulus flavopalliatus*, suggests by analogy with other islands of similar size that a third is unlikely also to be present there. Collections from Obi do include a variety of small, inconspicuous forest birds, so it is perhaps unlikely that a third species of large and predominantly bright red lory that most likely lives in noisy flocks should have been overlooked there.

Unless substantial evidence for the occurrence of a second species of *Eos* on Obi can be obtained it seems best to regard *goodfellowi* as likely to have been based on introduced caged immatures of *E. bornea*.

I am grateful to the Departments of Ornithology of the American Museum of Natural History, British Museum (Natural History) and Museum National d'Histoire Naturelle for facilities to examine specimens in their care.

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Caprimulgus affinis as an urban species in Indonesia

by W. G. Harvey

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The habitat of *Caprimulgus affinis* is described as "open sandy and shingle beaches, on ridges with bare rocky areas" (Delacour), "bare and stony hills" (Smythies) and "open forest, scrub" (King *et al.*). Although I have recorded this nightjar feeding over rice fields near Jakarta and flushed it from sand beaches on the South Java coast, in parts of West Indonesia it is very much an urban species. I have recorded it since April 1974 in the towns of Medan, Padang, Palembang and Mentok (Bangka Island) in Sumatra, and in Jakarta on Java. D. A. Holmes (pers. comm.) can add Jambi and Telukbetung in Sumatra, and (since 1976) Bogor in Java. I did not see it in Banda Aceh (December) in Sumatra, in Pontianak (January) and Banjarmasin (December) in Kaliamantan, nor in Bandung (June and August), Jogyakarta (June and July) and Surabaya (June and July) in Java.

Most records refer to birds flying over the urban area after dusk and calling. They are not common in the Sumatran towns, but they are very common in Jakarta, where, during April and May, it is not unusual to see up to 12 birds in the air at once or hear the call at up to 20 different places on a drive of no more than 10 km through the city. I have recorded the species in every month in Jakarta, but it is more conspicuous from March to July, when it probably breeds, at the end of the wettest season. The birds are usually seen flying slowly around lighted buildings after sunset, regularly calling—a distinct two note screech. Often several birds fly round together and occasionally courtship flights, involving a much slower version of the normal flight with wings struck vertically upwards and downwards, has been noted.

Large buildings (e.g. the large hotels in the Menteng area) although not necessarily made attractive to flying insects by being lit outside, are nevertheless attractive to nightjars, which are often seen perched (and calling) on their flat roofs. Occasionally daylight sightings of flushed birds have been recorded. It was thought that the nightjars might be nesting on the flat roofs in the manner of the *Chordeiles* species in the United States, but several day time explorations by D. A. Holmes and myself have revealed nothing. If these roofs are not the normal breeding site, then either the birds nest, presumably colonially, on the very few areas of fenced in waste ground which are not invaded by human beings, or they nest outside the city (e.g. on golf courses) and come into the city to feed at night. The latter seems unlikely since numbers of birds moving into the city would presumably be observed. Since the urban habitat of *C. affinis* is not, apparently, mentioned in the literature it may well be a recent development, which it would be of interest to follow-up throughout its range.

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The Ostrich *Struthio camelus* in Darfur, Republic of Sudan

by R. T. Wilson

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INTRODUCTION

Darfur occupies an area in excess of 400,000 km^2 in the northwest of the Republic of the Sudan, bounded to the south by the seasonal Bahr el 'Arab at about 9° 30′ N, stretching to the north at 29° N, to the west at *c.* 22° 30′ E and to the east at *c.* 27° E. The annual rainfall decreases from about 900 mm in the south to effectively nil in the north. The Jebel Marra, rising to about 3,000 m in the west-central area of the province, has some local effect on the otherwise even northwards reduction in rainfall.

Altitude, with the exception of Jebel Marra and its associated uplands, varies little, being *c.* 500–600 m, and rainfall is the principal factor in determining the vegetation pattern, although soil has some effect locally. In the south tall, fairly dense deciduous savanna woodland, dominated by *Combretum hartmannianum*, *Anogeissus schimperi* and *Sclerocaryia birrea*, with an understorey of tall perennial grasses, gives way gradually to thorn woodland at *c.* 11° N. The principal constituent of the latter is *Acacia seyal* on clay soils and *Acacia senegal* on sandy soils: medium height annual grasses, mainly *Aristida* spp. form the understorey. Semi-desert scrub, mainly *Acacia melliferra* and *Acacia nubica* dominate a transition zone from *c.* 12°–14° N, north of which true desert prevails, with the exception of some sparse vegetation in scattered depressions and watercourses.

SOURCES OF DATA

This paper is based on a survey of the literature pertaining to the supply of ostrich feathers and the distribution and abundance of the Ostrich *Struthio camelus* in the recent past; on observations by the author during 1972–1974 and in 1976, whilst living and working in Darfur; and on aerial surveys carried out in 1975 and 1976. An invaluable source of data has been the Intelligence Reports of the Sudan Government from 1892 to 1924.

EARLY DISTRIBUTION AND IMPORTANCE

Almost 200 years ago, W. G. Browne, one of the earliest of European travellers in the area, noted that Ostrich were common everywhere, and that ostrich feathers were both a principal item of trade and also formed a large part of the tribute of lesser chiefs to the Sultan of Darfur (Browne 1799). Ostrich feathers, along with slaves and ivory, were one of the principal exports of Darfur for very many years and Ostriches were kept as domestic animals by many families until well into the twentieth century. In the early

1870s the birds were reported to be very common in the east of Darfur and large bundles of feathers were seen rotting in the Sultan's treasury (Nachtigal 1879, English translation 1971).

During the Mahdiya, from *c.* 1880–1898 and during the reign of Sultan Ali Dinar 1898–1916, no Europeans visited Darfur and the distribution and abundance of Ostrich at this time are accordingly unknown, except that the military and civil intelligence reports contain several references to both Ostriches and feathers, and it is probable that numbers underwent a decline in the last two decades of the nineteenth century—one of the Sultan's commanders at one time resorted to the capture of 300 domestic birds from a local tribe (Sudan Intelligence Reports: No. 1, June 1892; No. 92, May 1902). Early in the twentieth century numbers appear to have increased, particularly in the northeast of Darfur (SIR No. 92, May 1902) and in the southwest (SIR No. 104, March 1903; No. 105, April 1903). Ostriches were still kept in captivity in large numbers as late as 1916, when every household among the Ma'aliya tribe was noted to have 2–3 birds (SIR No. 267, Oct. 1916), although it is not clear whether these were wild caught or bred in captivity.

During the 1920s and 1930s considerable travel and exploration was possible in Darfur as a result not only of the pacification of the country but also due to the advent of the motor car. Ostriches were said (Maydon 1923) to be "very common" in the vicinity of Um Gereinat (16° 30′ N, 26° 45′ E) in herds of 50–100, and nests could be found everywhere containing 10–20 eggs: wandering Arabs were said to live almost entirely on these eggs. A year later in a similar longitude but at 18° N, a district officer discovered rock pictures of Ostrich as well as seeing many live birds (Newbold 1924) and again in 1927 he saw many Ostrich at 16° 30′ N (Newbold & Shaw 1928). Again, in 1932, Ostrich were seen (Bagnold 1933) as far north as 16° 30′ N at between 24° E and 25° E and were present in large numbers in herds of 40–80 just south of this area: many unattended clutches of 6–10 eggs were passed and one nest containing 94 eggs was found. In southern Darfur the bird was reported (Madden 1934) as a common resident throughout and chicks were seen in February.

The evidence suggests (as travel in the early days was confined to the dry, cool weather) that the breeding season of the Ostrich throughout Darfur was in the early part of the winter, eggs being laid from October onwards. In East Africa the breeding season is throughout the dry season (L. H. Brown) and it is possible that in Darfur, where the rains are from June to September, this is also the case. Some synchronisation of breeding, such as occurs in East Africa (L. M. Hurxthal) can also be deduced, particularly from the large clutches recorded and from the size of the herds, which probably comprised mainly young birds of about one year old.

PRESENT DISTRIBUTION AND NUMBERS

Unfortunately none of the foregoing data are quantitative and it is not possible to estimate total numbers from them. It is likely, however, that the present area of distribution of the Ostrich in Darfur is not as widespread as previously, when they were common from as far south as 9° 30′ N to at least as far north as 16° 30′ N. Some Ostrich survive in northern Darfur, but apparently very few occur over large areas in the centre of the province, although two were seen on the Wadi el Ku in 1969 (A. Rendell). In southeast Darfur low-level aerial surveys of the stratified random sample type carried out during April and October of 1975 gave estimates of 1200–1500 birds, largely confined to an area of 5,000 km² of open savanna on sand, centred approximately on 10° N, 27° E. A similar aerial survey in April 1976 gave estimates of 450–500 Ostrich on about 10,000 km² of similar country centred on 12° 30′ N, 23° 45′ E, close to the international boundary of the Sudan with Tchad and the Central African Republic.

These figures give densities of 0·24–0·30 and 0·04–0·05 Ostriches per km² for the respective areas. The densities are broadly comparable with the 0·08–0·77 for Ostrich in the dry season in northern Tanzania (Lamprey 1964) and the range of 0·06–0·54 for other semi-arid areas of Tanzania and Kenya (L. M. Hurxthal).

It is unlikely that the total number of Ostrich in Darfur exceeds 4,000 birds at present, but that in the two principal areas in which they still occur the populations are fairly healthy. However, increasing pressure from human and domestic livestock populations will probably lead in the future to further reductions in range with a consequent reduction in total numbers.

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Comments on the Dusky Moorhen *Gallinula tenebrosa*

by C. M. N. White

Received 11 August 1976

Peters (1934: 203) listed three subspecies of *Gallinula tenebrosa*. He adopted the arrangement then current, for there had been no critical study of geographical variation in the species, nor has there been subsequently. The following notes result from a study of the status of the species in Wallacea.

Peters gave the range of nominate *tenebrosa* Gould (1846) as Australia. This requires qualification for it is known only from eastern and southwest Australia (Macdonald 1973: map 44, Condon 1975: 105–106). *G. t. frontata* Wallace (1863) is known in Wallacea from Celebes, Buru, Ambon, Seram, Sumba, Flores and Timor. It is thus much more isolated from the nominate form than is implied by Peters' distributions, for *t. tenebrosa* is absent from north Australia apart from north Queensland. The main character supposed to distinguish *frontata* from *tenebrosa* is the colour of the legs and feet, mostly red in *frontata*, mostly green or greenish yellow in *tenebrosa*. The discovery of *frontata* considerably antedated Gould's description of *tenebrosa:* Reinwardt collected it in 1821 in north Celebes, and Temminck at the Leiden Museum used a manuscript name *Gallinula haematopus* for his specimens, thus emphasising the red legs, but did not publish the name.

Salvadori (1882: 279) cited Wallace as recording the legs red, green at the joints. Meyer & Wiglesworth (1898: 714) using *frontata* binomially, gave its English name as "Red-legged Moor-hen", and quoted Guillemard for a bird from Celebes as "tarsus red, olive green at the joints". Dr. G. F. Mees (*in litt.*) has informed me that Coomans de Ruiter noted of Celebes birds that the legs were vermilion with grey joints. Five birds from Buru in the American Museum of Natural History record on their labels "feet vermilion, joints olive green": in one from Timor "feet red with a greenish tinge". In contrast Stresemann (1914: 55) described a bird from Seram as having the tarsus brownish yellow with unfeathered tibiotarsus red. He made no comment on this anomalous specimen.

Recent literature on Australian birds (Serventy & Whittell 1967, Frith 1969, Slater 1971, Macdonald 1973) states that in Australia the legs of *G. tenebrosa* are green or greenish yellow, red on tibiotarsus. Most museum specimens with the colour of the legs recorded on their labels confirm this, but some birds do not conform to this description. Mees (*in litt.*) noted that birds seen near Canberra in August had "dirty orange" legs. Goodwin (in Hall 1974: 85) described a recent specimen from New South Wales as "legs yellow, grey at ankle ("knees") and toe joints, and orange on tibia above ankle, and on front of tarsus". When I recently examined this specimen, the front of the tarsus had dried to a reddish shade. A skin in AMNH from Albert Passage, South Australia is labelled as having the front of the tarsus orange. In the same museum one from Gosford, New South Wales, and another from Melbourne, Victoria describe on their labels the legs and feet as "red". In the first the legs have dried to orange, in the second to red. There is thus good evidence that Australian birds sometimes have the tarsus partly orange. If the two skins quoted above are accurately labelled, some have red legs. Whether these variations are seasonal or individual remains to be ascertained.

Uncertainty over leg colour as a constant subspecific character is further raised by a population of this species apparently localised in the Hall Sound and Port Moresby area of south east New Guinea. Salvadori (1882) listed three collected in 1875 at Bioto and Naiabui, Hall Sound. D'Albertis had recorded the legs as red with greenish joints, and Salvadori accordingly identified them as *frontata*. He also noted that Ramsay had earlier reported a specimen from Laloki river as *tenebrosa*, and queried that identification. None of the many collectors working in the southern lowlands of New Guinea since 1875 have found this species and Dr. R. Schodde (*in litt.*) informs me that there are no specimens from New Guinea in the CSIRO collections. However Mackay (1970: 25) states that the species breeds in the Port Moresby area. This New Guinea population is geographically remote from *frontata* in Wallacea, but lives quite near to *tenebrosa* in north Queensland. It is thus surprising if it is really referable to *frontata* as the recorded leg colour indicates. Further information about the legs of the Port Moresby birds should be recorded.

The long accepted distinction between *tenebrosa* and *frontata* based on the colour of the legs is evidently valid for most specimens but not wholly constant, and there are anomalies both in leg colour and distribution which require further investigation. Meyer & Wiglesworth (1898) also stated that *frontata* is darker below than *tenebrosa*. In the material which I have examined six *frontata* viewed in series appear a little more sooty grey ventrally than Australian birds, but most of the skins are old and may have undergone postmortem changes. I should hesitate to rely on this character to distinguish *frontata*. I find some indication that the two forms differ slightly in size. Australian birds exhibit a marked sexual disparity in size. Five males have wings 214–223 mm, nine females 191–206 mm. On the other hand, in *frontata* from Celebes four females' wings measure 187–201 mm, eight unsexed birds 188–206 mm. Unless the latter are all females, *frontata* shows no marked sexual disparity in size.

One other record attributed to *frontata* requires comment. Gyldenstolpe (1955: 211) recorded, with hesitation, four specimens from the Vogelkop, northwest New Guinea, as *frontata*. He noted that they were very dark above without any olive dorsal tinge and that the legs were reddish yellow with grey-green joints. One of these skins is now in the Leiden Museum, and Dr. Mees states that it is blacker than specimens from Celebes and Moluccas, which are however older skins. It may be best to include the Vogelkop birds in *G. t. neumanni* Hartert (1930), described from Sentani Lake, north New Guinea, as a small form with blackish mantle lacking any olive brown suffusion. The leg colours of the Vogelkop birds agree with some recorded in *neumanni*. I have not investigated the latter race in detail, but note that it is known from three isolated populations which differ clinally in size. From west to east wing measurements (mm) are:—

Vogelkop: 2♂♂, 198, 201, 2 ♀♀, 180, 186; Sentani Lake: 8 unsexed, 170–188; Middle Sepik: 1 ♂, 170, 1 ♀ 161.

Dr. Schodde (*in litt.*) has commented that in Australia there have been reported sightings of *tenebrosa* with white fleckings on the flanks, and that this has prompted speculation that it may be conspecific with *Gallinula chloropus*. Mayr & Short (1970) list them as members of a species group. Both species were found breeding at the same locality in southeast Borneo by Grabowski last century. In southwest Celebes Wallace obtained both together at Makassar and Bräutigam both at Bone, without information about breeding. The two are sympatric at these localities. In the Lesser Sundas the supposed sympatry is less clear. At Lombok *chloropus* is known but not *tenebrosa*. At Sumbawa, Elbert obtained only *tenebrosa* and Rensch only *chloropus*, a juvenile, probably indicating breeding. Wallace obtained only *tenebrosa* at Flores last century but, more recently Paynter (1963) reported thence a series of *chloropus* including proof of breeding. It is thus possible that the two species are not completely sympatric in the Lesser Sundas and do not actually occur together at any locality. Since the dates when one or other species has been obtained in Sumbawa and Flores are separated by many years, the more recent being *chloropus*, the status of *tenebrosa* may have changed. Up to date information about supposed sympatry in the Lesser Sundas is needed.

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Haematozoa of British birds. I.* Blood parasites of birds from Dumfries and Lincolnshire

by M. A. Peirce & C. J. Mead

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Baker (1974) and Bennett *et al.* (1974), in reviewing the available data on the prevalence of blood parasites in British birds, showed that relatively few birds had been examined or parasites recorded. More recently Cheke *et al.* (1976) have published a list of the parasites obtained from a survey of birds in Hampshire and Yorkshire. To determine whether the low prevalence of haematozoa in British birds is a localised phenomenon or merely seasonal, birds have been examined in conjunction with the ringing programme of the British Trust for Ornithology, primarily at Tring, Hertfordshire. This paper reports similar observations from Lincolnshire and from Dumfries, Scotland.

All the birds examined (Table 1) were caught in mist-nets during routine trapping for ringing purposes either at Gibraltar Point, Lincolnshire (1–5 September 1975), or at two sites in Dumfries—Strathmilligan and Waterside Mains in the Penpont area of Thornhill (27 July–4 August 1975). 530 birds were examined, of which 386 individuals of 23 species were from Lincolnshire and 144 of 23 species from Dumfries.

Thin smears were made from blood taken from the tibial vein, air dried, fixed in pure methanol and subsequently stained with Giemsa's solution at a strength of 1:10 at pH 7·2 for one hour. Microscopical examination was carried out firstly under low power (×10) and then under a ×90 oil immersion objective for a more detailed morphological study.

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*No. II in the series is appearing in *J. Nat. Hist.*

TABLE 1

Blood parasites found in birds from Dumfries, Scotland, and Lincolnshire, England.

Species	*Dumfries Number Examined/infected*	*H*	*L*	*Hg*	*T*	*Lincolnshire Number Examined/infected*	*H*	*L*	*Hg*	*T*
Ringed Plover *Charadrius biaticula*		–	–	–	–	1/0	–	–	–	–
Wryneck *Jynx torquilla*		–	–	–	–	1/0	–	–	–	–
Swallow *Hirundo rustica*	3/2	–	–	2*	–	131/23	1*	3*	10*	11*
House Martin *Delichon urbica*	29/7	5*	–	3*	–	3/2	–	–	2*	–
Grey Wagtail *Motacilla cinerea*	1/0	–	–	–	–		–	–	–	–
Pied Wagtail *M. alba*	1/0	–	–	–	–		–	–	–	–
Meadow Pipit *Anthus pratensis*		–	–	–	–	1/0	–	–	–	–
Wren *Troglodytes troglodytes*	9/1	–	–	1*	–		–	–	–	–
Dunnock *Prunella modularis*	5/4	3	–	1	–	59/3	1	–	2	1*
Sedge Warbler *Acrocephalus schoenobaenus*	1/0	–	–	–	–	12/1	–	–	1*	–
Reed Warbler *A. scirpaceus*		–	–	–	–	11/0	–	–	–	–
Barred Warbler *Sylvia nisoria*		–	–	–	–	3/0	–	–	–	–
Garden Warbler *S. borin*	2/0	–	–	–	–	5/2	2	–	–	–
Blackcap *S. atricapilla*	2/0	–	–	–	–	4/1	1	–	–	–
Whitethroat *S. communis*	2/0	–	–	–	–	22/0	–	–	–	–
Lesser Whitethroat *S. curruca*		–	–	–	–	7/0	–	–	–	–
Willow Warbler *Phylloscopus trochilus*	8/3	1	1*	1*	–	30/10	4	5*	1*	–
Goldcrest *Regulus regulus*	19/3	–	–	3*	–		–	–	–	–
Robin *Erithacus rubecula*	22/7	–	7*	–	–		–	–	–	–
Pied Flycatcher *Ficedula hypoleuca*		–	–	–	–	1/0	–	–	–	–
Redstart *Phoenicurus phoenicurus*		–	–	–	–	1/0	–	–	–	–
Blackbird *Turdus merula*	3/0	–	–	–	–		–	–	–	–
Song Thrush *T. philomelos*	1/1	–	1	–	–		–	–	–	–
Willow Tit *Parus montanus*	6/4	–	4*	–	1*	2/0	–	–	–	–
Coal Tit *P. ater*	5/3	–	2*	3*	–		–	–	–	–
Blue Tit *P. caeruleus*	12/7	–	7	–	–	21/8	–	–	7	1*
Great Tit *P. major*	8/4	–	4*	–	–		–	–	–	–
Tree Creeper *Certhia familiaris*	1/0	–	–	–	–		–	–	–	–
Reed Bunting *Emberiza schoeniclus*		–	–	–	–	10/0	–	–	–	–
Goldfinch *Cardeulis carduelis*		–	–	–	–	30/0	–	–	–	–
Chaffinch *Fringilla coelebs*	2/2	2	–	–	–		–	–	–	–
Bullfinch *Pyrrhula pyrrhula*	1/1	–	1*	–	–		–	–	–	–
Linnet *Acanthis cannabina*		–	–	–	–	7/0	–	–	–	–
Redpoll *A. flammea*		–	–	–	–	22/0	–	–	–	–
Starling *Sturnus vulgaris*	1/0	–	–	–	–	2/0	–	–	–	–
TOTAL	144/49	11	27	14	1	386/50	9	8	23	13

H=*Haemoproteus* L=*Leucocytozoon* Hg=Haemogregarines T=*Trypanosoma*

* Denotes a new British host record

Results

Of the 144 birds examined from Dumfries, 49 (34%) of 14 species were found infected with one or more parasites. The most common genus of parasite found was *Leucocytozoon*, which occurred in 55% of the infected birds. The following parasites were identified:—

Leucocytozoon. *L. dubreuili* in Song Thrush† (1), *L. majoris* in Great Tit (4), Blue Tit (7), Coal Tit (2) and Willow Tit (4), *L. fringillinarum* in Willow Warbler and Robin (7).

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†For scientific names see Table 1.

Haemoproteus. H. orizivorae in Dunnock (1), *H. fringillae* in Dunnock (1) and Chaffinch (2), and probably *H. chelidonis* in the House Martins (see discussion).

Haemogregarines. *Lankesterella* spp. were observed in Goldcrest (3), Wren (1) and Willow Warbler (1), the remainder being of the *Hepatozoon* type.

Mixed infections were seen in only four birds:—a haemogregarine and *L. majoris* in Coal Tit (2), *L. majoris* and *Trypanosoma* sp. in Willow Tit, and *H. chelidonis* and a haemogregarine in House Martin.

From Gibraltar Point 50 (12·9%) birds of 8 species were found to harbour one or more parasites, the most common being haemogregarines (46% of infected birds). Specific identification was possible for the following:—

Haemogregarines. Most were of the *Hepatozoon* type, although *Lankesterella* sp. was identified in Swallow (2) and Willow Warbler (1).

Leucocytozoon fringillinarum in Willow Warbler (5) and Swallow (3).

Haemoproteus. H. orizivorae in Willow Warbler (2), Garden Warbler (2), Blackcap (1) and Dunnock (1), *H. fringillae* in Willow Warbler (2).

Trypanosomes in the Swallows were all considered to be *Trypanosoma phedinae*, and that in the Blue Tit, *T. everetti*.

In addition to the records in Table 1, three birds, two Willow Warblers and one Whitethroat, were infected with a Rickettsia-like organism.

Mixed infections were observed in only five birds; *H. orizivorae* and Rickettsia in Willow Warbler, *L. fringillinarum* and Rickettsia in Willow Warbler, *T. phedinae* and *Haemoproteus* sp. in Swallow, *T. phedinae* and *L. fringillinarum* in Swallow and *Trypanosoma* sp. and a haemogregarine in Dunnock.

Discussion

The 34% infection rate in Dumfries was considerably higher than in Lincolnshire and also higher than the May peak found in Hampshire and Yorkshire, but comparable to that found in two areas in May and June in Berkshire and Sussex (Cheke *et al.* 1976). The infection rate at Gibraltar Point (12·9%) was only slightly higher than that observed in 1972 (10%) when far fewer birds were examined (Bennett *et al.* 1974). The most prevalent parasites at Gibraltar Point were haemogregarines, and in Dumfries *Leucocytozoon* spp.

One Robin from Dumfries showed a very light infection with *L. fringillinarum*, but when re-trapped eight days later had a very high parasitaemia. This suggests that the bird, which had fledged during that current breeding season, had been infected towards the end of July. The absence of *L. majoris* from the Paridae caught at Gibraltar Point, when by comparison it was common in Dumfries, and the fact that the only birds infected with *Leucocytozoon* spp. were migrants, might suggest the absence of specific vectors in the Gibraltar Point area.

The taxonomy of haemoproteids from the Hirundinidae is poorly understood. Coatney & Roudabush (1937) named *H. prognei* from one infected Purple Martin *Progne subius* from Nebraska. Their description and illustrations were excellent, particularly when compared with those of the two species described previously, *H. chelidonis* and *H. hirundinis*, and they concluded that *H. prognei* most closely resembled *H. hirundinis*, with only minor differences. This could be expected from examining only one infected bird. Because our own material consisted of light infections, we were unable to identify conclusively the parasite in the Swallow as the same as that from the House Martins, and pending the availability of more material, we prefer to consider the parasite in the House Martins to be *H. chelidonis,* as originally described by Franchini (1922). Yakunin (1972) has recorded *H. chelidonis* from House Martin, Swallow and Sand Martin *Riparia riparia*, in Kazakhstan, although from only one specimen of each, out of 28, 450 and 138 birds of each species respectively—a very low incidence. Future work will probably determine whether any synonomy exists between the haemoproteids of the Hirundinidae, but that those of Swallows and House Martins may be host specific is suggested by the results of a study of the hippoboscid *Crataerina hirundinis*. Summers (1975) concluded that *C. hirundinis* was generally host-specific for House Martins. It is quite probably the vector of *H. chelidonis*; so a similar situation might exist with the haemoproteids of Swallows and House Martins, as indeed it does with the Wood Pigeon *Columba palumbus* and the Rock Dove *C. livia*. In these, *H. columbae* and *H. palumbis* have morphologically similar erythrocytic stages, but are transmitted by different vectors and are host-specific (Baker 1967, 1975).

The haemogregarines from Swallows and House Martins were morphologically indistinguishable from the *Hepatozoon* described from Cliff Swallows *Petrochelidon pyrrhonota* in California (Clark & Swinehart 1966), but we believe they probably represent a new species.

The large number of Swallows examined was for a specific purpose. Peirce *et al.* (1976) described a new species of trypanosome *T. phedinae* from the Malagasy Swallow *Phedina borbonica* in Mauritius which closely resembled one illustrated by Oosthuizen & Markus (1967) from European Swallows in South Africa, some of which carried British rings (Markus pers. comm.). We aimed therefore to determine whether the parasites were the same and were being transmitted in Britain. Of the 11 birds found infected, six were identified as having been reared in Britain during the current breeding season, and therefore had become infected here, and we were able to show that the parasites were morphologically indistinguishable from *T. phedinae*. Whilst most birds are almost certainly infected in Britain, this does not preclude the possibility of reinfection or transmission to other birds on their wintering grounds in South Africa.

One of the most interesting discoveries was that of a parasite resembling *Trypanosoma everetti* in a Blue Tit from Gibraltar Point. Hitherto, *T. everetti* has been recorded only from a few birds from mainland Africa and the Comoro Islands (Peirce & Cheke 1976). This present record suggests that the parasite has a far wider geographical distribution although probably dependent upon being brought to Britain by one of the trans-Saharan migrants. This being so, there must still be a vector here, capable of transmitting the parasite to other species.

The results generally show that there is a wider variety of blood parasites in British birds than data from previous work would suggest. However, the incidence would appear to be dependent on the local availability of appropriate vectors, rather than a strict seasonal occurrence of patency.

Summary

A survey of blood parasites in birds was carried out in Lincolnshire, England, and in Dumfries, Scotland. 530 birds were examined of which 99 were found to be infected with one or more parasites. The following parasites were identified; *Haemoproteus orizivorae*, *H. fringillae*, *H. chelidonis*, *Leucocytozoon majoris*, *L. dubreuili*, *L. fringillinarum*, *Trypanosoma*

phedinae, *T. everetti*, Rickettsia and haemogregarines. *Leucocytozoon* ssp. were more prevalent in Dumfries, and haemogregarines in Lincolnshire. The results are discussed in relation to both geographical and seasonal occurrences, together with the taxonomic implications to some of the parasites observed.

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The race of *Sterna bergii* in Kenya

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According to White (1965) and Mackworth-Praed & Grant (1952) the race of the Swift Tern *Sterna bergii* occurring in Kenya is *S. b. thalassina* which breeds on the islands of the Western Indian Ocean, though Jackson (1938) listed Kenya birds as *S. b. velox*, which breeds in the Red Sea and northern Somalia. In view of the dark colouration of Kenya birds, and the fact that the few records available to them were from north of Mombasa, Britton & Brown (1974) considered it likely that Kenya birds were *S. b. velox*. On the other hand, recent breeding data from Latham Island, close to the Tanzania coast, no doubt refer to *S. b. thalassina*, as probably do all Tanzania records (Britton & Brown 1974).

In three years residence on the Kenya coast, Britton & Britton (1976) have shown that *S. bergii* is far commoner than previously supposed. It is regular near Malindi, especially at the mouth of the Sabaki River, though south of this area there are only three recent sightings, all of single birds. The most southerly record is from Nyali (4° 2′ S) but this species is only regular in any numbers south to the Sabaki River at 3° 9′ S. It occurs in all months of the year, but flocks of 20 or more (up to 180) are recorded only January–June. All birds seen by P.L.B. have the slate-grey mantle of *S. b. velox*, which breeds in northern Somalia August–September (Mackworth-Praed & Grant 1952).

On 29 April 1976 two *S. bergii* were collected from a typical flock at the mouth of the Sabaki River. With the assistance of the curator, T.O.O. has compared these specimens with material in the National Museum, Nairobi (Table 1). Mackworth-Praed & Grant (1952) give the wing-lengths of *velox* as 337–377 mm and *thalassina* as 318–348 mm. In mantle colouration the Sabaki birds are indistinguishable from the Aden and Somalia birds, and all three fully moulted wings from these darker mantled birds fall within the range of *velox* and outside the range of *thalassina*. One of the Amirantes, pale mantled, birds has a long wing, outside the range given for *thalassina*. Birds with growing primaries can be recognised by the primary tips being silver-grey rather than black or blackish; on the other hand the Aden bird and long-winged Amirantes bird have fresh, apparently complete primaries though with this same silver-grey tip, and may not have attained full growth. Bill measurements are perhaps more reliable in this small series. Mean bill-length for the four *velox* is 65·2 mm against 56·8 mm for the three reliable *thalassina*, a significant difference ($P < 0\cdot002$, *t*-test). Female bills may be smaller than male bills, and these small samples include both sexes, so that it is probably unreasonable to assume that distributions are normal. But we have little doubt that larger samples, analysed by sex, would show a significant difference in bill length-between the two races, possibly without overlap.

TABLE 1

Measurements (mm) and weights (g) of *Sterna bergii*

Locality	*Date*	*Wing*	*Bill to Skull*	*Sex*	*Weight*	*Plumage*
Sabaki, Kenya	29/4/76	360	65·2	—	360	near breeding S
	29/4/76	(330)	63·8	♀	340	non-breeding S
Bender Beila, Somalia	12/7/43	357	64·7	—	—	non-breeding S
Khormaksar, Aden	19/7/20	372	67·2	♂	—	breeding S
Remire Is., Amirantes	21/9/67	351	57·4	♂	345	non-breeding P
	21/9/67	(332)	(51·6)	♂	325	breeding P
	21/9/67	(333)	58·6	♂	350	non-breeding P
	21/9/67	330	54·5	♀	350	sub-adult P

Notes: S indicates mantle slate-grey, characteristic of *S. b. velox*.
P indicates mantle very pale grey, characteristic of *S. b. thalassina*.
Wing-lengths in brackets are of birds in almost completed moult, and the measurements refer to the second long primary.
The bill of only 51·6 mm has a worn tip.

Jackson (1938) implies that he collected *S. bergii* near Mombasa at Kanamai (3° 55′ S), but there is no African specimen in the British Museum (Nat. Hist.) where many of Jackson's specimens are held (P. R. Colston *in litt.*), so that the two specimens from Sabaki may be the first from Kenya. Thus the non-breeding range of *S. b. velox* extends substantially south from its breeding ground sin the Red Sea and northern Somalia, though *S. bergii* may in fact breed much closer to Kenya than northern Somalia, as displaying pairs were recorded at Brava in southern Somalia (1° N) by North (1945), a reference seemingly overlooked by more recent authors. There is a dearth of suitable tern and wader habitat on the Kenya coast south of the Sabaki River mouth and nearby Mida Creek, and these latter areas probably therefore form the southern limit for *S. b. velox*, as they probably also do for non-breeding Caspian Terns *Sterna caspia*, Gull-billed Terns *S. nilotica* and Broad-billed Sandpipers *Limicola falcinellus* (Britton & Britton 1976). Thus it would seem that the non-breeding ranges, as well as the breeding ranges, of *S. b. velox* and *S. b. thalassina* may be considered discrete in eastern Africa.

In the Seychelles archipelago, to the east of Kenya at about 4° S, *S. b. thalassina* is widespread in all months, and has frequently been seen feeding flying young, though nests have not been found (A. W. Diamond *in litt.*), and such records do not necessarily imply recent breeding or breeding in the near vicinity (Feare 1975). It is known to nest on the geographically close Amirantes archipelago, politically a part of Seychelles (Diamond *in litt.*). Feare's sight record of a dark-backed *S. bergii* from Bird Island in the Seychelles archipelago at 3° 43′ S on 11 September 1973 is noteworthy. This dark bird was most probably *S. b. velox* as the occurrence of the southern breeding *S. b. bergii*, which is darker mantled than *thalassina* but paler than *velox*, in Seychelles is unlikely (White 1965). *S. b. velox* can be no more than a vagrant in Seychelles, and it may similarly reach Tanzania very occasionally.

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The nest and eggs of *Tauraco fischceri*

by P. L. Britton & H. A. Britton

Received 9 August 1976

Despite their bright colouration, distinctive voice and fairly large size, forest turacos are difficult to observe, and much remains to be learnt of their breeding behaviour. The nests of all Musophagidae studied are flat, flimsy structures of twigs, like those of the Columbidae, with two eggs that are white or tinted (Moreau 1964). *Tauraco fischeri* occurs not uncommonly in coastal forest, thicket and woodland from Tanga and the lowlands of Usambara in Tanzania to the Juba River in Somalia (White 1965), but its nest and eggs are apparently undescribed.

On 1 June 1976, Mr. John Shaw informed us that a few days previously he had seen a *T. fischeri* taking a stick into the canopy of a Msambarau *Syzygium cumini* tree in his garden at Shimo-la-Tewa School, Mombasa, Kenya. It was not possible to see any nest in the thick foliage of this large tree, but it seemed likely that the bird was building a nest. H.A.B. visited the site on 4 June. No bird or nest could be seen in this tree but a *T. fischeri* in a nearby Msambarau called several times from thick foliage. Subsequent visits were made but no bird was seen. Exceptionally heavy rain followed in mid June, making the tree too slippery to climb, and although many leaves fell during this wet period, it was still not possible to see any nest. A student at the school, James Kalume, eventually climbed the tree on 22 June, and in the part of the canopy where the bird was seen in late May, at 7·5 m above the ground, he found a stick nest which he described as a loose platform of twigs. There was no lining or other material in the nest, and it was not taken as it could only be removed in pieces. It contained a single egg, in danger of falling from the nest, and it is possible that a second egg had fallen earlier. Although the evidence is circumstantial, there is no doubt in our minds that this was the nest and egg of *T. fischeri*, which is the only musophagid occurring at this locality.

When collected the egg was off-white with ill-defined but extensive pale blue-grey underlying areas; but one month later it is now rather grey overall. It is virtually spherical, measuring 36·1 × 34·6 mm, and weighed 22·6 g, or 8–11% of body weight (see Britton 1970, Moreau 1944). It was taken for the National Museum, Nairobi, and when blown it was found to have started to decompose. The yolk was rich orange in colour, as in the closely related *T. livingstonii* (Mackworth-Praed & Grant 1952). Incubation was very slight, but the egg had evidently been abandoned for several days, so that it was probably laid in early June. A bird was probably incubating or laying when the site was visited on 4 June.

Van Someren (1932) found this species nesting on the Kenya coast in June, but no details are given of his record, which has not been incorporated by later authors. A specimen from Sokoke, Kenya, in the National Museum had enlarged ovaries in May. Coastal Kenya has an April–June rainfall regime, so that breeding is apparently in the wettest months; northeastern and coastal Tanzania on the other hand has long rains March–May and short rains November–December (Griffiths 1958). Mackworth-Praed & Grant (1952) mention young just out of the nest in Tanzania in October and March, and there is a female in the National Museum which had active gonads when taken in December at Amani. At Arusha, in northeastern Tanzania, seven out of eight breeding records of *T. hartlaubi* are between August and January (Beesley 1973), and a similar period, straddling the short rains, is the likely pattern in *T. fischeri* in the same climatic zone.

The almost spherical eggs of Musophagidae, Strigidae and Alcedinidae are mentioned by Lack (1968), and an egg of *Musophaga rossae* is used to illustrate eggs of this shape (Hughes 1964). *T. fischeri*, *T. persa*, *T. schutti*, *T. livingstonii* and *T. corythaix* are considered members of a superspecies by White (1965), but egg shape is curiously variable within this superspecies. The eggs (mm) of *T. livingstonii* (40 × 34), *T. corythaix* (38 × 32) and *T. schutti** (37 × 30) are somewhat oval, as are two eggs of *T. persa* (37 × 29),

* The *T. schutti* data probably include the two eggs collected by the late Capt. C. R. S. Pitman in Bugoma Forest, Uganda on 24 May 1944, measuring 37·3 × 29·8 and 36·1 × 30·3 mm. As far as we are aware, exact measurements of eggs of this species have not been previously published. They were supplied to H.A.B. by Capt. Pitman (*in litt.*) to be copied onto E.A.N.H.S. nest record cards.

though *T. persa* eggs are typically more spherical (36 × 33) (data from Mackworth-Praed & Grant 1952, 1970) and very close in shape to that of *T. fischeri*.

We are grateful to John Shaw and James Kalume for their invaluable assistance in finding this nest.

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New subspecies of *Schizoeaca fuliginosa* and *Uromyias agraphia* from Peru

by John P. O'Neill & Theodore A. Parker, III

Received 22 June 1976

The Cordillera Carpish is a high mountain massif located (9° 40′ S, 76° 4′ W) between the towns of Huánuco and Tingo María in the Departamento de Huánuco of Peru. Its western slopes are under the influence of a rain shadow and are quite arid, but the eastern slopes above *c* 2060 m are covered with luxuriant cloud forest (for details see Tallman 1974). From the vicinity of the Carpish Tunnel, where the Carretera Central crosses the range at *c* 2740 m, one gets no idea that the highest peaks both northwest and southeast of there rise above timberline and provide habitat for many species of birds that would not otherwise be found in the region; such birds as *Ampelion* [*Doliornis*] *sclateri*, *Hemispingus rufosuperciliaris*, *Notiochelidon flavipes*, *Nephelornis oneilli Iridosornis jelskii*, *Uromyias agraphia*, and *Schizoeaca fuliginosa* were found to be not uncommon.

In 1973, during studies in these areas by a field party from the Louisiana State University Museum of Zoology, we obtained a series of the White-chinned Thistletail *Schizoeaca fuliginosa*.

The Carpish population of *S. fuliginosa* proved to be a well-marked race that we propose to call

Schizoeaca fuliginosa plengei subsp. nov.

Type: Adult male, collected on 23 June 1973 by Erika J. Tallman at Bosque Taprag above (NE) Acomayo, Departamento de Huánuco, Peru, elevation *c* 3350 m. No. 74008, Louisiana State University Museum of Zoology. (Dan A. Tallman original number 1328.)

Description: Differs from all known forms of *Schizoeaca fuliginosa* by possessing a *white* superciliary stripe and by having the feathers of the throat, malar region, breast, and belly marked with moderate to strong white shaft streaks.

Measurements of type (mm): Wing (chord) 58·2, tail 105·7, tarsus 25·4, culmen from base 16·4.

Range: So far as known, north and west of the Huallaga River in the Carpish massif of the eastern Andes of Peru in the Departamento de Huánuco; recorded from suitable habitats both northwest and southeast of Carpish Tunnel.

Specimens examined: Schizoeaca f. fuliginosa (6). Venezuela: Páramo de Tamá, 1♂, 1♀ (AMNH 811984–985). Ecuador: Cerro Huamani, 1♀ 1♂, (AMNH 176074 and 180296); Oyacachi, 1♂ (AMNH 180295); Sumaco, 1♂ (AMNH 186385).

S. f. peruviana (11). Peru: Atuén, 2♂♂, 4♀♀ (ANSP 115322, 115324–328); Llui, 1♀, 1 sex ? (ANSP 117508–509); Bagazán, 1♀ (ANSP 117510); km 404 on Balsas-Leymebamba rd., 1♂ (LSUMZ 80507); 25 km W Leymebamba, 1♂ (MVZ 156484).

S. f. plengei (14). Peru: Bosque Cutirragra, 1♂ (LSUMZ 74007); Bosque Taprag, 1♂ (LSUMZ 74008, type); Bosque Magrapampa, 1♀, 1♂ (LSUMZ 74009–010); Huaylaspampa, 1♂ (LSUMZ 74011); Bosque Zapatagocha, 1 sex ?, 1♀ (LSUMZ 75209–210); Bosque Quiullacocha, 1 sex ? (LSUMZ 79684); Unchog, 5♂♂, 1♀ (LSUMZ 80501–506).

S. f. griseomurina (1). Peru: Huancabamba, road to San Ignacio, 1♂ (FMNH 222320).

Remarks: Not uncommon in the *pajonal* just above timberline. As used in Peru, the term pajonal refers to a wet, sometimes boggy area above timberline that contains a mixture of grasses, scattered bushes, tree ferns, and, in some areas such as in the Carpish mountains, clumps of terrestrial bromeliads.

We take great pleasure in naming this new form for Manuel A. Plenge, both in recognition of his contributions to Peruvian ornithology and in appreciation of the friendship and courtesies he has extended to ornithologists from all over the world who have come to his home in search of information concerning Peru's avifauna.

The populations of *Schizoeaca fuliginosa* are divisible into two main groups, a rufous- or buff-chinned one and a white-chinned one. The new form is white-chinned. As stated by Vaurie *et al.* (1972) populations of *S. fuliginosa* do not vary greatly in size, and we found this true of all four of the white-chinned forms. We were fortunate in having recently-collected specimens of all forms of *S. fuliginosa* except *S. f. vilcabambae* available to us for making colour comparisons. Material collected 40 to 50 years ago cannot safely be used in making colour determinations, though basic differences in patterns are still clearly evident. Thus the subterminal dusky markings on the belly feathers and the pale shaft streaks on the throat feathers of *S. f. peruviana*, characters not mentioned by Cory (1916) when he described that race, nor by Carriker (1933) when he gave reasons for rejecting it, are discernible in all specimens examined regardless of their museum age. The ventral markings are least pronounced in *S. f. fuliginosa* and *S. f. griseomurina*, both of which are essentially grey below. *S. f. plengei*, the southernmost of the white-chinned races, has underparts that appear lightly streaked due to the presence of white shaft markings, and *S. f. peruviana*, to which the new race is most closely related, has mottled underparts. *S. f. palpebralis*, the northernmost of the rufous-chinned races, and the one that is found just south of *S. f. plengei*, is plain grey below. *S. f. palpebralis* and *S. f. griseomurina* further differ from all the other races by possessing large, striking white eye-rings and by the near absence of a superciliary line. *S. f. griseomurina* stands alone among the white-chinned forms in its plainness. The presence of a form in both the white-chinned and the rufous-chinned groups that is essentially unmarked below and which possesses a striking white eye-ring is a matter of considerable interest, but we have no explanation to account for the significance of this variation.

TABLE 1

Comparisons of colours of recently collected specimens of the four white-chinned races of *Schizoeaca fuliginosa*

	S. f. fuliginosa	*S. f. peruviana*	*S. f. plengei*	*S. f. griseomurina*
Dorsal colour	burnt umber	burnt umber	burnt umber	mouse-brown
Superciliary colour	olive-grey	olive-grey	white, some olive-grey speckling	mouse-brown, obscure
Chin colour	white	white	white	white
Throat colour	grey, obscure white shaft streaks	grey, strong white shaft streaks	whitish, narrow grey edging	grey, unmarked
Breast colour	grey	grey	grey	grey
Belly colour	greyish-white unmarked	grey, feathers with subterminal darker spot and tipped greyish white	grey, feathers with white shaft streak and white tip	grey, slightly paler than breast
Flank colour	olive-grey	olive-grey	rufescent-olive	olive-brown
Rufous on primary 2, 3	little, not reaching shaft	strong, reaching shaft	strong, reaching shaft	lacking, mouse-brown instead

Schizoeaca is not recorded between the Huánuco localities north and west of the Huallaga River south to Hda. Maraynioc in central Junín, where the rufous-chinned, eye-ringed, form *S. f. palpebralis* occurs. The canyon of the Huallaga cuts a major swath through the mountains of central Huánuco, and the canyon of this river may form the boundary between the northern white-chinned group and the southern, rufous- or buff-chinned complex. Mountain areas to the west that attain elevations suitable for *Schizoeaca* are too dry for them; to the the east the Carpish massif drops off into lowlands that are also unsuitable for *Schizoeaca*. In Peru thistletails seem to be found only over 3050 m in the wet *pajonales* of the eastern Andes, and are inhabitants of thick, often mossy or grass-choked vegetation, where they creep about in search of food. They rarely fly and may not be capable of long distance flights, and thus show mountain "island" distributional and evolutionary patterns. Because of the paucity of *Schizoeaca* habitat in the vicinity of the "Northern Peruvian low" (see Vuilleumier 1968) we are sure that neither of the two forms found north of the "low", *S. f. fuliginosa* and *S. f. griseomurina*, make contact with *S. f. peruviana*, the form found south of this unsuitable area. The two northern forms may make contact with each other, but there is presently no indication that they do so; there is no information about the degree of continuity of suitable habitat in the vast area intervening between the known ranges of *S. f. plengei* and *S. f. peruviana* to indicate whether they are sympatric or separate.

TABLE 2

Selected measurements in millimeters of the four white-chinned races of *Schizoeaca fuliginosa*

WING		*TARSUS*		*CULMEN FROM BASE*	
males	*females*	*males*	*females*	*males*	*females*
S. f. fuliginosa					
n=4	n=2	n=4	n=2	n=3	n=2
60·5–66·0	57·7–59·9	24·1–25·2	22·8–23·0	15·6–16·5	16·1–17·0
(60·9)	(58·8)	(24·8)	(22·9)	(16·1)	(16·6)
S. f. peruviana					
n=5	n=6	n=5	n=6	n=5	n=6
59·1–64·2	55·6–58·6	25·1–25·7	22·1–24·8	16·2–18·0	15·3–17·2
(61·4)	(57·6)	(25·4)	(23·8)	(16·8)	(16·3)
S. f. plengei					
n=9	n=3	n=9	n=3	n=9	n=3
54·5–58·2	54·2–55·0	24·0–26·2	23·3–25·0	16·2–17·2	16·9–17·0
(56·9)	(54·6)	(24·9)	(24·1)	(16·6)	(16·9)
S. f. griseomurina					
n=1	n=1*	n=1	n=1*	n=1	n=1*
62·9	58·0	25·9	25·5	16·5	15·0

* measurement supplied by E. R. Blake, *in litt.*

E. R. Blake of the Field Museum, Chicago, has called to our attention (pers. comm.) two Peruvian specimens of *S. f. griseomurina* in that collection. This subspecies is known from southern Ecuador, but has not previously been reported from Peru (Meyer de Schauensee 1970, treated therein as a full species). They were taken by Celestino Kalinowski "on the road to San Ignacio, Km 30, 3000 m [above] Huancabamba, Department of Piura". The two specimens are a male, taken on 22 May 1954 (FMNH 222320), and a female, taken on 20 May 1954 (FMNH 222319). We examined only the male.

Vaurie's (1971) decision to place all forms of the genus (*sensu stricto*) into a single polytypic species may later prove to be incorrect. Most of the forms will probably prove to be allopatric and for this reason few opportunities will be provided for testing whether they are capable of interbreeding, but the possibility should be kept in mind by field workers.

In the Carpish area of Huánuco and in the Ollantaitambo-Quillabamba area in the Cordillera Vilcanota, Departamento de Cuzco, we also obtained five specimens of the poorly-known Unstreaked Tit-Tyrant *Uromyias agraphia*. The three specimens from the Carpish massif not only extend the range of the species *c* 550 km to the north-northwest, but they are recognizably distinct from those of the southern population. We propose to call them

Uromyias agraphia squamigera subsp. nov.

Type: Adult male, collected on 21 July 1973 by Erika J. Tallman at Bosque Cutirragra, south of Huaylaspampa, Departamento de Huánuco, Peru, elevation *c* 2775 m. No. 74301, Louisiana State University Museum of Zoology. (Dan A. Tallman original number 1552.)

Description: Differs from *U. a. agraphia* by having the feathers of the breast both edged and prominently tipped with white, instead of only edged with white, to form scalelike markings.

Measurements of type (mm): Wing (chord) 57·9, tail 68·5, tarsus 19·3, culmen from base 13·7.

Range: Known from timberline forest and elfin-woods of the Cordillera Carpish, Departamento de Huánuco, Peru.

Specimens examined: Uromyias agilis (3). Colombia: La Victoria, 1♀ (FMNH 292223); Florente, 2♂♂ (FMNH 292222 and 292226).

U. agraphia agraphia (2). Peru: 24 km NE Abra Málaga, 1♂ juv. (LSUMZ 78796); San Luís, 1♂ (LSUMZ 78797).

U. a. squamigera (3). Peru: Bosque Cutirragra, 1♂ (LSUMZ 74301); Punta de Esperanza, 1♂ (LSUMZ 79704); Carpish [=Carpish Tunnel], 1♂ (MVZ 160746).

Remarks: The name *squamigera* is used in reference to the scaly effect created by the white tips on the breast feathers. Although *Uromyias agraphia* has only been reported from three areas, we suspect that it will eventually be found to inhabit suitable areas between Huánuco and Cuzco and that it may range south to central Bolivia.

It forages in groups of two or three up to a half dozen individuals, unusual for tyrannids. That there is no literature about the Unstreaked Tit-Tyrant except a description of the type specimen is amazing as the species is common both in the Cordillera Carpish and on the northeast side of the pass between Ollantaitambo and Quillabamba in the Cordillera Vilcanota. We never saw them hang upside down, but they forage restlessly and nervously, preferring open or semi-open areas, especially where tangles and thickets with *Chusquea* bamboo occur. Most food seems to be obtained by picking and gleaning. Flycatching, in the strict sense, is uncommon. *Uromyias agraphia* is mainly a bird of timberline vegetation, but we have seen it at the edge of cloud forest clearings as low as 2740 m.

Birds from the Carpish region are nearly identical in size to those from the Departamento de Cuzco. Two of the three *U. a. squamigera* are much paler yellow, and the third slightly paler yellow below than are the two *U. a. agraphia* in the LSUMZ collection. Examination (J.P.O'N) of the type of the species, collected at Idma near Santa Ana (Hda. Santa Ana=present-day town of Quillabamba) by Edmund Heller and described by Chapman (1919) showed it to be essentially identical to the LSUMZ specimens taken in the same range *c* 120 km to the south-southeast.

When we first initiated this study we were of the opinion that *U. agraphia* might be nothing more than the southern representative of *U. agilis*, but Melvin A. Traylor of the Field Museum of Natural History in Chicago, has informed us (*in litt.*) of why he believes that the two are not conspecific. Some of the differences are a matter of degree, such as the heavier ventral streaking and brighter yellow breast of *agilis*, but other characters are quite distinct: *agilis* has the back streaked, *agraphia* does not; *agilis* has a pale base to the mandible, *agraphia* does not; *agilis* has black lores and a white superciliary stripe that goes from the region of the nares to the distal tip of the black crest, but in *agraphia* the superciliary stripe and the lores are mottled grey and white and the stripe terminates just posterior to the eye; *agilis* has the tertials and inner primaries broadly edged with buffy white, but in *agraphia* the edging is olive and not obvious. One of the most striking differences is that the juvenal plumage of *agilis* exhibits two distinct buffy wing bars, while the juvenal plumage of *agraphia* (LSUMZ 78796 with skull 20% ossified) lacks any trace of wing bars. A further hint is that the population of *agraphia* geographically nearest to *agilis*, namely the Carpish population with their scalloped breasts, is the most distinct phenetically. We thus agree with Traylor that the two are best treated as separate species until proven otherwise.

We gratefully acknowledge the financial support of the LSUMZ Peruvian field work by John S. McIlhenny of Baton Rouge, Louisiana, and in 1975 also by John F. Maher of Houston, Texas. O'Neill gratefully acknowledges a grant in 1975 from the Frank M. Chapman Memorial Fund. We are also grateful to the following for the loan of specimens: E. R. Blake and Melvin A. Traylor (Field Museum of Natural History, Chicago=FMNH), Frank B. Gill (Academy of Natural Sciences of Philadelphia=ANSP), Ned K. Johnson (Museum of Vertebrate Zoology, Berkeley=MVZ), Wesley E. Lanyon and John Farrand, Jr. (American Museum of Natural History, New York=AMNH). We thank Marc Dourojeanni R., Carlos Ponce P., and Antonio Brack E. of the Dirección General Forestal y de Fauna, Ministerio de Agricultura, Lima, Peru, for their continued interest in our work and for the issuance of neccessary permits. Ramón Ferreyra and Hernando de Macedo (Museo de Historia Natural "Javier Prado" in Lima) have helped us in many ways. Robert S. Kennedy, Carol S. O'Neill, Ronald J. Louque, and Dan A. and Erika J. Tallman were all involved in the field work. Lastly we express our appreciation to George H. Lowery, Jr., under whose direction the Peruvian field work of the Louisiana State University Museum of Zoology (LSUMZ) has been carried out.

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Bulletin of Zoological Nomenclature: Opinions and Directions

In continuation of *Bull. Brit. Orn. Cl.* 95, 1975: 176, and by permission of the International Trust for Zoological Nomenclature, the following Rulings are quoted as extracts from Opinions and Directions published in *Bull. Zool. Nomencl.* affecting birds:

OPINION 1037

(*Bull. Zool. Nomencl.* 32(2), 1975: 103)

Curruca affinis Blyth, 1845 (Aves) suppressed under the plenary powers—

(1) Under the plenary powers the specific name *affinis* Blyth, 1845, as published in the binomen *Curruca affinis* is hereby suppressed for the purposes of the Law of Priority but not for those of the Law of Homonymy.

(2) The following names are hereby placed on the Official List of Specific Names in Zoology with the Name Numbers specified:

(a) *althaea* Hume, 1878, as published in the binomen *Sylvia althaea* (Name No. 2546);

(b) *blythi* Ticehurst and Whistler, 1933, as published in the combination *Sylvia curruca blythi*, and interpreted by reference to the British Museum specimen No. 98.9.101 (Name No. 2547).

(3) The specific name *affinis* Blyth, 1845, as published in the binomen *Curruca affinis* (as suppressed under the plenary powers in (1) above) is hereby placed on the Official Index of Rejected and Invalid Specific Names in Zoology with the Name Number 1003.

OPINION 1046

(*Bull. Zool. Nomencl.* 32(4), 1976: 222)

Drepanididae Cabanis, 1847 (Aves) and Drepaneidae Gill, 1847 (Pisces): placed on Official List of Family-Group Names in Zoology—

(1) The request to use the plenary powers to protect Name No. 306 on the Official List of Family-Group Names in Zoology (i.e. Drepanididae Gadow, 1891) is refused.

(2) Under the plenary powers it is ruled that the stem of the generic name *Drepane* Cuvier, 1831 (Pisces) for the purposes of Article 29 is Drepane-.

(3) The generic name *Drepane* Cuvier, 1831 (gender: feminine), type-species of nominal genus, by subsequent designation by Jordan, 1917, *Chaetodon punctatus* Linnaeus, 1758, is hereby placed on the Official List of Generic Names in Zoology (Name Number 2020).

(4) The specific name *punctatus* Linnaeus, 1758, as published in the binomen *Chaetodon punctatus* (specific name of type-series of *Drepane* Cuvier, 1831) is hereby placed on the Official List of Specific Names in Zoology (Name Number 2562).

(5) The following family-group names are placed on the Official List of Family-Group Names in Zoology:

(a) Drepanididae Cabanis, 1847 (Aves) (correction, as a consequence of the Ruling given in (1) above, of entry No. 306 in the Official List of Family-Group Names in Zoology) (type genus *Drepanis* Temminck 1820), (Name Number 306).

(b) Drepaneidae Gill, 1872 (Pisces) (type-genus *Drepane* Cuvier, 1831) (Name Number 479).

(6) The following generic names are hereby placed on the Official Index of Rejected and Invalid Generic Names in Zoology:

(a) *Drepanichthys* Bonaparte, 1831 (Name Number 2065),

(b) *Enixe* Gistl, 1848 (Name Number 2066), and

(c) *Harpochris* Cantor, 1849 (Name Number 2067), all being junior objective synonyms of *Drepane* Cuvier, 1831.

(7) The following family-group names are hereby placed on the Official Index of Rejected and Invalid Family-Group Names in Zoology:

(a) Drepaninae Cabanis, 1847 (an incorrect original spelling of Drepanididae Cabanis, 1847) (Name Number 467);

(b) Drepanidae Bonaparte, 1853 (an incorrect subsequent spelling of Drepanididae Cabanis, 1847) (Name Number 468);

(c) Drepanididae Gadow, 1891 (determined through the Ruling in (1) above to be a subsequent usage of Drepanididae Cabanis, 1847) (Name Number 469);

(d) Drepanidae Gill, 1872 (determined through the Ruling given under the plenary powers in (2) above to be an incorrect original spelling of Drepaneidae Gill, 1872) (Name Number 470).

[It is to be noted that names (a), (b) and (d) under (7) in the above Ruling are not only homonyms among themselves, but are all also junior homonyms of Drepanidae Boisduval, [Nov. 1828] (Lepidoptera) (Name No. 307 on the Official List of Family Group-Names in Zoology).]

DIRECTION 107

(*Bull. Zool. Nomencl.* 32(4), 1976: 248)

Correction of author and date for Loriidae (Aves) (Official List of Family-Group Names in Zoology. Name Number 457)—

It is hereby directed that entry No. 457 placed on the Official List of Family-Group Names in Zoology by the Ruling given in Opinion 938 is to be amended to read as follows:

> Loriidae (correction of *Loriana* and Lorianae) Selby, 1836, *Parrots*, in the Naturalist's Library, Ornithology, 6: 57, 141, 142 (type-genus *Lorius* Vigors, 1825) (Class Aves).

[The Ruling in Opinion 938 quoted in the Direction 107 above, was reproduced in *Bull. Brit. Orn. Cl.* 91, 1971: 116—Ed.]

IN BRIEF

Specimens of *Neodrepanis hypoxantha* in Dresden

I drew attention (*Bull. Brit. Orn. Cl.* 94(4), 1974: 141–143) to a specimen of *N. hypoxantha*, in the Merseyside County Museums, bringing the then recognised total of specimens up to eleven. However, I overlooked the note by Eck (*Zool. Abh. st. Mus. Tierk., Dresden* 29(16), 1968: 229–230), who recorded two specimens in the Staatlichen Museum für Tierkunde, Dresden. The first of these is the "one more adult male in another German museum" among the nine specimens accounted for by Salomonsen (*Oiseau et R. f. O.* 35, no. spéc., 1965: 108). Collected by J. M. Hildebrant at Andrangoloaka, central Madagascar, in November 1880, it was evidently close to breeding, since it had bare skin around the eye, bronze-green encircled by beryl-blue. The second specimen in Dresden was also obtained by Hildebrandt, in June 1880, and is said to be a juvenile male, the bill weaker and shorter than in the adult. This juvenile therefore brings the total number of known specimens of *N. hypoxantha* up to twelve.

24 August 1976 C. W. Benson

Address: Dept. of Zoology, Downing Street, Cambridge.

BOOKS RECEIVED

Ferguson-Lees, J., Hockliffe, Q. & Zweers, K. 1975. *A Guide to Bird-Watching in Europe*. Pp. 298, 22 maps, 36 pp. of tables, black and white drawings. London: Bodley Head. £3·95.

Covers 25 areas, so generally and briefly for some as to be hardly more than a useful list of birds and place names.

Scott, Bob & Forrest, Don. 1976. *The Birdwatcher's Key*. Pp. 271, fully illustrated in colour. London: Warne. £2·25.

Covers 382 species in the British Isles and N.W. Europe.

Ridgely, R. S. 1976. *A Guide to the Birds of Panama*. Pp. xv + 394, 32 colour plates of nearly 500 species and black and white drawings by J. A. Gwynne, Jr. Princeton: Princeton University Press. £10·50. Sponsored by the International Council for Bird Preservation.

A very nicely produced, well illustrated volume, with a brief introduction to climate, migration and conservation, followed by a text on the over 880 species of this important junction of two zoogeographical regions, giving description, confusable similar species, status and distribution, habits and range.

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PREFACE

The Editor is glad to be able to thank Mr. and Mrs. C. W. Benson for their continued goodwill and diligence in preparing the lists, index and corrigenda for this volume. Mr. Benson has also once more been to much trouble to extract the relevent matter from the *Bulletin of Zoological Nomenclature*, with the kind permission of the International Trust for Zoological Nomenclature.

The Club continues to be fortunate in the punctual publication of the *Bulletin* each quarter, due in no small part to the efficiency of Mr. K. E. Wiltsher and his staff at the Caxton and Holmesdale Press.

JAMES F. MONK

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The Committee much regrets to record the death of Sir A. LANDSBOROUGH THOMSON, C.B., O.B.E., D.SC., LL.D., Vice-Chairman 1935–38, Chairman 1938–43.

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Mrs. C. W. Benson and Mrs. M. Hawksley)

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Corrigenda

p. 5, lines 1, 31: '*Glareola*', not '*Clareola*'
p. 5, line 38: 'Malindi', not 'Inalindi'
p. 9, lines 13, 17: '*rueppellii*', not '*ruppellii*' or '*rüppellii*'
p. 10, line 49: '*camaronensis*', not '*cameronensis*'
p. 15, line 51: '*Coliuspasser*', not '*Colliuspasser*'
p. 33, line 41: 'C. F. Mann', not 'V. F. Mann'
p. 59, line 37: '*cyanoptera*', not '*cyonoptera*'
p. 64, line 30: '*rufiventris*', not '*rufriventris*'
p. 71, line 30: '*Dicaeum*', not '*Dicaem*'
p. 81, line 44: '*Lagonosticta*', not '*Tagonosticta*'
p. 88, line 40: '*Eurystomus*', not '*Eurystomas*'
p. 93, line 21: '*Tyrannopsis*', not '*Tyrrannopsis*'
p. 97, line 20: '*indicator*', not '*indictaor*'
p. 97, line 51: '*Sphenoeacus*', not '*Sphenoaeacus*'
p. 98, line 17: '*Trochocercus*', not '*Trochocerus*'
p. 98, line 45: '*afer*', not '*afra*'
p. 98, line 47: '*hordeaceus*', not '*hordeacea*'
p. 109, line 25: '*Anas acuta*', not '*anas Acuta*'
p. 119, line 18: '*sharpii*', not '*sharpei*'

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Bulletin of the

British Ornithologists' Club

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Edited by
Dr. J. F. MONK

Volume 97 No. 1 March 1977

ANNUAL GENERAL MEETING

The Annual General Meeting of the Club will be held in the Senior Common Room, South Side, Imperial College, Prince's Gardens, London, S.W.7 at 5.45 p.m. on Tuesday, 3 May, 1977.

AGENDA

1. Minutes of the last Annual General Meeting.
2. Report of the Committee and Accounts for 1976.
3. The *Bulletin*.
4. Election of Officers.
   The Committee proposes that:—
   - (a) Mr. P. Hogg be elected Chairman *vice* Professor J. H. Elgood, who retires on completion of his term of office and is ineligible for re-election.
   - (b) Dr. G. Beven be elected Vice-Chairman *vice* Mr. P. Hogg, who retires on completion of his term of office and is ineligible for re-election.
   - (c) Mr. M. St.J. Sugg be re-elected Hon. Treasurer.
   - (d) Mr. R. E. F. Peal be re-elected Hon. Secretary.
   - (e) Mr. C. F. Mann be elected a member of the Committee *vice* Dr. C. J. O. Harrison, who retires by rotation.
   - (f) Mr. B. Gray be elected a member of the Committee in the event of Dr. G. Beven being elected Vice-Chairman.
5. Any other business of which notice shall have been given in accordance with Rule (7).

By Order of the Committee,

RONALD E. F. PEAL.
Honorary Secretary.

FORTHCOMING MEETINGS

Tuesday, 3 May 1977 at 6.15 p.m. for 6.45 p.m. at the Senior Common Room, South Side Imperial College, South Kensington (entrance in Prince's Gardens, S.W.7, off Exhibition Road). *A symposium on Asiatic Birds*, at which the speakers will include Lord Medway on Migrants in Malaysia, Mr. M. W. Woodcock on the Indian Avifauna and Mr. I. C. Orr on Ornithology in China. Those wishing to attend must send a cheque for £3·45 per person to the Hon. Secretary with their acceptance on the enclosed slip.

Tuesday, 19 July 1977 at 6.30 p.m. for 7 p.m. at the Goat Tavern, 3 Stafford Street, London, W.1, Mr. Stanley Cramp on the *Handbook of the Birds of Europe, the Middle East and North Africa* (*The Birds of the Western Palaearctic*), Vol. 1 of which is due for publication in June 1977.

COMMITTEE

J. H. Elgood (*Chairman*)
P. Hogg (*Vice-Chairman*)
R. E. F. Peal (*Hon. Secretary*)
M. St.J. Sugg (*Hon. Treasurer*)
Dr. J. F. Monk (*Editor*)
Mrs. J. D. Bradley
Dr. C. J. O. Harrison
C. E. Wheeler
Dr. G. Beven

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Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 97 No. 1 Published: 18 March 1977

REPORT OF THE COMMITTEE FOR 1976

In 1976 inflation continued at a headlong rate. This has hit the Club directly through much higher costs and indirectly through its dire effect on home Members. It is therefore encouraging that 33 new Members joined in the year. Resignations numbered five and 11 Members were struck-off under Rule (4). At the end of the year there were 274 Members and 132 non-Member subscribers to the *Bulletin* up-to-date with their subscriptions.

Meetings were held in January, March and July at the Goat Tavern in Mayfair and in May, September and November in the Senior Common Room at Imperial College. We are fortunate as the meals at both venues are excellent value (prices for dinner at the Goat having been £2·10—£2·25 and at Imperial College £2·95—£3·25), especially as our numbers are smaller than caterers may welcome. At 159, the total attendances at meetings were only very slightly down on the previous year and the May meeting, the Club's seven hundredth, was a particular success with outstanding speakers for a symposium on aspects of African ornithology.

The size of the *Bulletin* was reduced to 144 pages, but it is hoped to maintain it at this size in 1977 despite a probable total increase in costs during the year of over 15%. The waiting time for publication of papers remains at a satisfactory six months or less. The *Bulletin* is a valuable reference work for museums and libraries; information would be welcome from Members about institutions, especially in other countries, which might become subscribers, since a larger circulation makes possible either a larger *Bulletin* or a lower subscription rate. In this connection, the rates of membership and *Bulletin* subscriptions have risen in the last 10 years by 133% and 150% respectively; but against a harder currency (e.g. the Swiss Franc or the German Mark), Sterling at the end of 1976 was only 36% of its value ten years before, so for those who pay in such currencies subscription rates are lower than in 1966.

The accounts for 1976 show an excess of income over expenditure, but this does not reflect the true situation as they include money from sources other than 1976 subscriptions, some of them outstanding from 1975. Also included are many gifts and donations from generous members.

The Committee has tried to minimise the Club's running costs, but the only way to establish a sound financial basis is by increasing income. All members can assist by actively encouraging others to join and by covenanting their subscriptions if they have not already done so.

* * *

The Seven hundred and fourth Meeting of the Club was held at the Goat Tavern, 3 Stafford Street, London, W.1 at 7 p.m. on Tuesday, 18 January, 1977. *Chairman:* Professor J. H. Elgood; present 19 members and six guests.

Dr. Peter Ward spoke on Palaearctic migrants in Nigeria. He dealt especially with seasonal movements within tropical Africa of a number of species which breed only in the Palaearctic region. He showed slides illustrating the extensive nature of these movements and there followed a wide-ranging and stimulating discussion.

INCOME AND EXPENDITURE ACCOUNT for the year ended 31st DECEMBER, 1976

1975 £	EXPENDITURE	£·p	£·p
1,750	Cost of Publication and Distribution of *Bulletin*		2,070·43
50	Notices, etc., for Meetings		60·11
48	Audit Fee—1976		32·40
28	Lecture and Dinner Expenses		28·50
67	Miscellaneous Expenditure and Postage		90·01
10	Projector Depreciation		10·00
280	*Transfer to General Fund*		234·25
£2,233			£2,525·70

1975 £	£	INCOME	£·p	£·p
		SUBSCRIPTIONS:		
	885	Members and Associates	1,017·54	
	658	Subscribers	647·23	
1,543				1,664·77
256		Sales of *Bulletins* for previous years ..		184·14
		INCOME TAX RECOVERED UNDER DEEDS OF COVENANT:—		
		1975 and 1976	185·25	
18		Transitional	17·66	
				202·91
		INVESTMENT AND DEPOSIT INCOME:—		
		General Fund	105·44	
		Trust Fund	48·98	
141				154·42
		RENT—*Less* EXPENSES—PROPERTY:—		
224		"Clovelly", Tring		265·35
51		Donations		54·11
£2,233				£2,525·70

BALANCE SHEET as at 31st DECEMBER, 1976

1975 £	£		£·p	£·p
		GENERAL FUND		
	1,278	As at 31st December, 1975	1,558·05	
	280	*Add:* Transfer from Income and	234·25	
1,558		Expenditure Account		1,792·30
		BULLETIN FUND		
110		Donations from Members		110·15
33		CREDITORS		42·27
1,701				1,944·72
		TRUST FUND (The capital of this Fund may not be used—the income from it is General Revenue)		
1,000		F. J. F. Barrington Legacy		1,000·00
£2,701				£2,944·72

J. H. ELGOOD, *Chairman*
M. ST. J. SUGG, *Hon. Treasurer*

1975 £	£		£·p	£·p
		GENERAL FUND INVESTMENT		
		£100 8½% Treasury Loan, 1980/82, at Cost	100·00	
		Less: Reserve	20·00	
80		(£86) Market Value £83		80·00
		PROJECTOR AND SCREEN		
		At Cost	100·00	
50		*Less:* Depreciation	60·00	
				40·00
		STOCK OF *Bulletin*—Nominal Value		
1		No value has been included for the stock of the Scientific Index ..		1·00
—		DEBTORS		—
		CASH AT BANK—Current Account ..	389·10	
		—Deposit Account ..	434·62	
1,570				823·72
		GENERAL FUND INVESTMENT		
—		Salisbury District Council Bond (10%)		1,000·00
1,701				1,944·72
		TRUST FUND INVESTMENT		
1,000		£1,399·55 3½% War Stock		1,000·00
		(£343) Market Value £363·88		
£2,701				£2,944·72

I have prepared the above Balance Sheet and annexed Income and Expenditure Account from the books and records of the Club and certify them to be in accordance therewith.

72 HENDFORD, YEOVIL, SOMERSET
8th February, 1977

K. P. GEE
Registered Accountant.

Four species of birds new to Ethiopia and other notes

by J. S. Ash

Received 4 August 1976

These notes present data on four species of birds new to Ethiopia, and additional information about four other species recently found there (Ash 1973).

EUPODOTIS HUMILIS *Little Brown Bustard*

Previously only known from a rather restricted area of northern Somalia (*ex* British Somaliland), this species is now known to occur over a wide area of eastern Ethiopia in the Ogaden and to its north. In a journey through the Ogaden Oct–Nov 1975 at least 27 birds were seen, 1–6 Nov:—near Godere (51° 03′ N, 43° 59′ E), 12 birds in an area up to 12 km south, 30 km north and 46 km west; El Behid Wells (5° 05′ N, 43° 25′ E.), 3 at 5 km east; El Adeile Wells (5° 03′ N, 43° 29′ E.), 4 at 8 km south; El Gigle Wells (5° 02′ N, 43° 28′ E.), 4; Danan (6° 30′ N, 43° 30′ E.), 2 at 14 km east; Kebredehar (6° 45′ N, 44° 17′ E.), a pair at 79 km north. The remains of a bird found 30 km north of Godere on 2 Nov 1975 were of this species (Dr. G. E. Watson *in litt.*) and are deposited in the Smithsonian Institution. As some of these localities are along the disputed Ethiopia/Somalia border, the species must also occur in the Upper Juba province of Somalia.

Gerhard Nikolaus travelled through a more western part of the Ogaden in October 1975, and reported twice seeing bustards which, from his notes made at the time, were undoubtedly this species:—pairs of birds on 7 Oct at about 63 km northeast of Imi (6° 28′ N, 42° 10′ E.) and on 9 Oct at 5 km west of Dagabur (8° 13′ N, 43° 33′ E.). On 22 Dec 1975, he also saw a lone male much further north, at about 30 km south of Aisha (10° 45′ N, 42° 35′ E. close to the Somalia/T.F.A.I. border. None was seen on other journeys in Nov and Dec through the country to the east of a line Dire Dawa (9° 35′ N, 41° 52′ E.)–Adigalla (10° 25′ N, 42° 15′ E.)–Aisha, and in the country between Jijiga (9° 20′ N, 42° 47′ E.) and the Somalia border to the northeast and east.

One is obliged to conjecture that the whole of the region under discussion has been colonised by this species in the past few years. In September 1971, a long journey throughout the Ogaden failed to reveal the species anywhere —if it had been as common then as it is now, we could not have failed to see it, since it is not an inconspicuous bird in the light open thornbush country which it inhabits. Possibly one of the effects of the prolonged drought over the whole of this region in recent years has been to drive the species westwards in quest of less arid conditions.

The diagnostic characters which in conjunction separate it from all other bustards were well seen:—small size (even smaller than the Senegal Bustard *Eupodotis senegalensis*), brown upperparts speckled with black, much more heavily marked with black in the ♀, black spots on the nape of the ♂, often forming a V, a black chin mottled with white, neck greyish white, breast buffish brown, belly white (the underparts of some ♀♀ are mottled with darker brown), a long narrow white wing bar, with two black spots at the carpal joint in both the closed and open wing, black axillaries, iris yellow brown, bill dark reddish at base, legs yellow.

Clareola nordmanni *Black-winged Pratincole*

On 3 Jan 1970 at Pukwo (8° 12′ N, 34° 22′ E.) on the Baro River in Illubabor Privince, western Ethiopia, a flock of 500 pratincoles was seen on the far distant side of the river. Some occasionally flew close enough to be identified clearly as this species by the colour of their under-wing coverts. *G. pratincola* was not seen. The presence of large numbers of *G. nordmanni* in western Ethiopia has been confirmed subsequently (*in litt.*):—at Itang (8° 10′ N, 34° 14′ E.) a short distance further downstream the Baro River on 9–11 Dec 1972 John Farrand, Jr., saw *c.* 500 *G. nordmanni* and *G. pratincola* together in about equal numbers.

G. Nikolaus found 150 pratincoles, mostly *nordmanni*, at Itang on 12 Dec 1972, and later with Hans Rupp, whilst travelling down the Baro into the Sudan, saw *c.* 10,000 pratincoles between Berhane Salam (8° 14′ N, 34° 01′ E.) and Jekaw (8° 23′ N, 33° 45′ E.) on 29 Jan 1973, both species being present in roughly equal numbers.

This area is clearly an important focus for wintering *G. nordmanni*, isolated by a great distance from the main wintering area in southern Africa (Moreau 1972). It is not known to which form the numerous *G. pratincola* belonged and whether they are of the Palaearctic race or one of the African races is unknown. *G. pratincola* also occasionally occurs eastwards along the Baro as far as Gambela (8° 15′ N, 34° 35′ E.), where a bird examined by John Farrand and myself on 13 Dec 1972 proved to be *G. p. limbata*.

G. nordmanni is now known also from much further east. Three birds, again clearly identified by their black underwing coverts, flew close past me near to the ground on 7 Oct 1972, at Lake Abiata (7° 36′ N, 38° 40′ E.) in the Ethiopian Rift Valley. *G. pratincola* is the common and widespread pratincole in this area, and was first shown to be breeding in Ethiopia only in 1971 (Ash 1972), either *G. p. limbata* or *fuelleborni*. A little further north at Koka (8° 27′ N, 39° 06′ E.), 2–4 birds were present 21–24 Sep 1975, and Dr. S. J. Tyler saw one at the same place on 19 Oct.

Clareola ocularis *Madagascar Pratincole*

In an irrigated area along the River Awash at Dubte (11° 44′ N, 41° 05′ E.) in Dancalia, Eastern Ethiopia, a single "rather uniform looking" pratincole was seen on 29 Oct 1973 sitting on a mud bank on flooded land, and on close approach, the main distinguishing features of this species, the white spots behind and below the eye, the absence of a black "necklace" and the almost unforked tail, were seen clearly. I have seen this species in hundreds along the Kenya coast north of Inalindi. Mackworth-Praed & Grant (1957) mention that *G. ocularis* has been recorded as far north as the southern coast of Italian Somaliland, so the present record, the first in Ethiopia, is an extension northwards of *c.* 1500 km beyond its known non-breeding season range.

Chlorocichla flavicollis *Yellow-throated Leaf-love*

The suspicion raised, in the description of the first Ethiopian occurences (Ash 1973), that this species might prove to be more widespread, has been substantiated:—at the original Didessa site (9° 02′ N, 36° 09′ E.) 1–3 occurred daily from 18 Jan to 1 Feb 1973 and 1–5 or more daily, 14–28 Feb 1974. On 21 Feb 1974, on the Didessa River above the bridge where the Nekempte –Gimbi road crosses it, the species was fairly common along the river bank on the forest edge. On 1 Mar 1974, there were at least two birds in trees alongside a small stream *c.* 30 km north of Nekempte at 9° 18′ N, 36° 32′ E. On 12 May 1974 one was seen and heard singing in gallery woodland, along a stream at 1140 m a.s.l. at 22 km along the track from Alem Teferi to Dembidollo at *c.* 8° 51′ N, 35° 08′ E, in Illubabor Province. G. Nikolaus and H. Rupp kindly let me examine and identify a ♀ ,which contained a fully developed egg, collected by them on 1 Apr 1974 at the Didessa River at 8° 38′ N, 36° 26′ E, near Argio in Wollega Province. Dr. S. J. Tyler recorded the species in 1974 at Angar Gutin (9° 37′ N, 36° 37′ E.), also in Wollega. There were 2–5 on 7 days at Didessa between 11 and 19 Sep 1975. On 15 Feb 1976, G. Nikolaus found a juvenile ♀ at 16 km west of Bure at 8° 17′ N, 35° 03′ E, and I saw two birds along the River Gilo at Mungum (7° 30′ N, 34° 27′ E.) on 16 Mar 1976; both localities are in Illubabor.

Measurements are now available for 18 birds, including five retraps, from Didessa:—*Weight:* range 37·0–45·8, mean 40·7±2·79 g. *Wing:* range 94–107, mean 102·8±3·68 mm (13 individuals, excluding the retraps). Repeat weights of individual birds have been as follows: 38·8–37·0; 43·7–42·5–40·5; 41·4–42·1; 38·3–39·6 g.

BRADYPTERUS ALFREDI *Bamboo Warbler*

I have netted this species, new to Ethiopia, four times in three localities in Ethiopia. The first was eaten by a Blue-headed Coucal *Centropus monachus* in a mist-net, at Didessa (9° 02′ N, 36° 09 ′E.) on 7 Mar 1970; only the head could be found, but it was identified in the British Museum by Mr. Derek Goodwin as *B. alfredi.* The second was netted at Bulcha Forest (6° 27′ N, 38° 11′ E.), 360 km southeast of Didessa, on 10 Jun 1971. The head of this bird matched the Didessa specimen exactly, and the key in Mackworth-Praed & Grant (1957) also indicated *B. alfredi.* A third specimen occurred at Bulcha on 21 June 1974, and a fourth on 29 Apr 1975 at Gambela (8° 15′ N, 34° 35′ E.), 200 km southwest of Didessa. The identifications of the last three specimens have been confirmed by Dr. G. E. Watson and J. Farrand Jr. at the Smithsonian Institution.

The Gambela site, at 525 m a.s.l. is a complex mosaic of riverline marshland *Combretum/Terminalia* savanna, crops, mixed deciduous woodland and native habitations. There are no bamboos in the immediate vicinity. The Didessa locality, at 1260 m a.s.l. in Shoa Province, was near the bottom of the river valley, in tall dead grass in open *Combretum/Terminalia* woodland, only a few miles from bamboo covered hills. The Bulcha locality, at 1320 m a.s.l., in Sidamo Province, was on the edge of dense gallery forest in thick bushes amongst scattered trees; no bamboos are known within 50 km. All three areas would appear to be a typical habitat for the species, and the Ethiopian records provide a remarkable extension from the known restricted range of the species in western Uganda and western Tanzania.

A discussion of the identification of the Ethiopian material in relation to other species of *Bradypterus* and with regard to previously described subspecies of *B. alfredi* will appear elsewhere (Watson, Farrand & Ash, in prep.).

LOCUSTELLA FLUVIATILIS *River Warbler*

Following the previous Ethiopian occurrences (Ash 1973) three further examples have been netted. The first, was in thick bushes below trees on the forest edge at Bulcha (6° 27′ N, 38° 11′ E.), Sidamo Province, on 19 Nov 1972, weight 19·8 g at 0730, wing 73 mm. Two others were caught at Koka (8° 27′ N, 39° 06′ E) in thick lakeside thornbush:—one on 16 Sep 1975, weight 16·9 g at 0600, primaries in moult (weight 17·1 g on 18th at 0930); and one on 23 Sep 1975, weight 19·6 g at 1800, wing 74 mm.

The third bird listed in Ash (1973) (wing 69 mm, weight 14·2 g) must be deleted, since it has been reidentified as *Locustella l. luscinioides:* a salutary reminder of the care required in separating these two species.

A summary of the measurements of Ethiopian specimens is now:—*Weight:* range 14·8–19·8, mean 17·8±1·61 g (8 birds); *Wing:* range 69–77, mean 73·3±2·58 mm (6 birds).

ACROCEPHALUS BAETICATUS *African Reed Warbler*

Following the report of several specimens in 1970–1972 in two Ethiopian localities (Ash 1973), it is of particular interest to record four more examples, of which three are from new localities. Two were collected by G. Nikolaus and H. Rupp 20 km northeast of Bonga at 7° 23′ N, 36° 20′ E in Kaffa Province on 25/26 Mar 1974. My identification as *A. baeticatus cinnamomeus* has been confirmed at the Smithsonian Institution. As both were in breeding condition, it is possible that they were about to breed in the immediate area in which they were collected. Another bird was caught at Koka, one of the original sites, on 28 May 1975 (wing 54 mm, weight 7·6 g), and another at a new locality, Gambela (8° 15′ N, 34° 35′ E.) on 20 Apr 1975 (wing 56 mm, weight 6·2 g). The measurements of Ethiopian *A. baeticatus* are as follows: *Wing*, range 54–58, mean 55·9±1·25 mm (8 birds); *Weight*, range 6·2–8·1, mean 7·6±0·56 g (11 birds).

Fry *et al.* (1974) consider *A. baeticatus* and *A. dumetorum* to be conspecific. Smith's (1964) record from the Eritrean mangroves, which now needs to be included in this category, was one of many singing there, and had enlarged testes at the end of January. When I was on Scek Said Island (15° 36′ N, 39° 28′ E.) off Massawa, on 28 Dec 1972, there were several unstreaked Acrocephaline warblers actively displaying and singing in the mangroves. I assumed these were Smith's *A. dumetorum*, but was unable to revisit the site owing to the political situation. Brother Edmund Johnson managed to visit the island on 7 Jan 1976 and very kindly obtained a specimen for me. This bird is not *A. dumetorum*, and does not agree with any known *Acrocephalus*, although it is nearest to *A. agricola*. Kumerloeve (1974) describes another *Acrocephalus* of unkown association from Ethiopia and all these will be discussed elsewhere.

At the best, *A. baeticatus* must be rare in the Ethiopian localities away from coastal mangroves, for only these few specimens have been seen in the course of several months of intensive work at all seasons over a period of seven years in the localities mentioned. With the exception of the November record, all the others fall between 13 Mar and 28 May; with the probability of breeding near Bonga, there is a strong suggestion that this bird is an intertropical migrant only present in the country for a short time of the year.

PHYLLOSCOPUS SIBILATRIX *Wood Warbler*

Ash (1973) describes the first Ethiopian record of this species. Two more were watched in the Gibe gorge (8° 14′ N, 37° 35′ E.), Shoa Province, on 5 Nov 1972. They were feeding actively with a small party of Chiffchaffs

Phylloscopus collybita in a leafy tree, where they were observed closely on two occasions during the day.

Corvus splendens *Indian House Crow*

There has been doubt about the identification of crows occuring in Massawa (15° 35′ N, 39° 29′ E.) on the Ethiopian Red Sea Coast (Boswall 1971, Urban & Brown 1971). During a visit there, 26–28 Dec 1972, up to 50 *C. splendens* were seen daily in the town. Their blackish face masks deep grey necks, and blackish wings distinguished them from Brown-necked Ravens *Corvus ruficollis* with which apparently they had been confused previously. During brief and limited visits to Eritra I have not seen any ravens except around Assab (13° 02′ N, 42° 35′ E.). Smith (1957) did not record them north of Thio (14° 41′ N, 40° 56′ E.) and it seems unlikely that over the course of a few years Massawa was populated by a large number of *C. ruficollis*, which were replaced by similar numbers of *C. splendens* in less than three years. Dr. A. S. Cheke (*in litt.*) recorded *C. splendens* in Djibouti in 1966 and I found them to be fairly common there in December 1975. It is curious that it has not colonised Assab in Ethiopia, a port lying halfway between the above-mentioned towns.

Corvus ruficollis *Brown-necked Raven*

Urban & Brown (1971) accept the Brown-necked Raven from Assab recorded by Beals (1966) as C. *r. ruficollis*, but birds I saw in September 1974 consorting with Pied Crows *C. albus*, appeared to be *C. r. edithae*, which is common over much of lowland Ethiopia. Smith (1957) thought that all these northern birds were referable to *edithae*, and one I collected on 9 Jun 1974, 20 miles north of Gewani (10° 10′ N, 40° 38′ E.) was confirmed as such by Dr. G. E. Watson at the Smithsonian Institution.

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New nesting records for Rüppell's Griffon *Gyps ruppellii* in West Africa

by Arthur A. Green

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Although Rüppell's Griffon *Gyps rüppellii* is widely distributed in West Africa, Bannermann (1953) could not quote reliable breeding data. Serle (1943) visited the inselberg (a granite outcropping) at Kotorkoshi in Sokoto Province, northwestern Nigeria, in September 1939 where he found over 100 Rüppell's Griffons in the evening. Villagers told him that they nested there in February. Dobbs (1959) said they nested there in February 1948, but gave no details. Morel & Morel (1962) gave the first definite record for West Africa: two nests, each with a single egg, in December 1961 in the Senegal Valley. The breeding site at Kotorkoshi was confirmed by Mundy & Cook (1973) when they saw and photographed three chicks there in February 1971, and when they photographed another chick there in March 1972 (1974a). They also reported (1974b) a nesting colony of at least a dozen nests with incubating birds in late December on the inselberg at the entrance to Waza National Park, northern Cameroon. This note records two other breeding sites from West Africa, and in addition I have been informed of three nesting sites (as yet unpublished) from Mali and Senegal.

From March 1972 to April 1975 I was carrying out ecological surveys in Arli National Park, which together with adjoining wildlife reserves occupy over 7000 km² of southeastern Upper Volta. The Park lies within the Sudan Savanna zone. About 1000 mm of rain falls annually between May and late September, and the dry season is long and severe. This sparsely settled region is well endowed with big game, and vulture food is abundant. Rüppell's Griffons are found in the Park throughout the year, usually in company with the more numerous White-backed Vulture *Pseudogyps africanus*.

In March 1972 a nesting colony of Rüppell's Griffons was found just outside the Park boundary at Pagou (11° 40′ N, 1° 28′ E), a mesa of 2 km² which rises with sheer cliffs 150 m above the plain. A few hundred metres north of Pagou is a 130 m high sandstone butte on which 8–12 birds nest each year. In March 1972 four nests were inspected, and two contained single young birds. Breeding was recorded during the following three years. Nesting generally begins in November, with most eggs hatching during the first three weeks of December (although one nest produced a chick in mid-January 1975). Young birds leave the nest between late March and early May. When an observer visits a nest, adult birds soar overhead until after his departure. Chicks under six weeks of age exhibit no fear of Man, but older ones cower against the cliff face or thrust their heads into crevices.

At the four accessible nests, during four seasons the nesting success was only about 25%. Baboon predation accounted for a few of the failures. Nests on higher ledges were better protected, and nesting success was probably greater.

In November 1974 I noticed Rüppell's Griffons soaring above the 150 m high sandstone cliffs of the escarpment at Tambarga (11° 27′ N, 1° 13′ E) about 36 km southwest of Pagou. Villagers reported that vultures nested there annually. In March 1975 I climbed to three nests. The young birds in two nests seemed about ready to fly, but the third chick appeared to be only about 6 weeks old. Three other, inaccessible, nests were seen; there were probably others. During my visit about 25 adults soared overhead.

There are other mesa and escarpment cliffs in this region which may also yield nesting colonies of Rüppell's Griffons, and it is probable that the species is a common, although local, breeder in West Africa as a whole.

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The Orange Ground-thrush *Turdus tanganjicae* (Sassi) a valid species

by A. Prigogine

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The African ground-thrushes of the former genus *Geokichla* have for a long time puzzled the systematists because the differences between the species are so small. Thus, *Geokichla piaggiae* was considered by Sclater (1930) as a race of *Geokichla gurneyi*. The rare *Geokichla oberlaenderi* was treated first as a race of *G. gurneyi* (Sclater 1930), later as a race of *G. piaggiae* (Mackworth-Praed & Grant 1937). It was even supposed that *oberlaenderi* might be the female and *G. crossleyi pilettei* the male of a single species (see Chapin 1953). Some years ago I showed (Prigogine 1965) that, in accordance with Bannerman (1936) and White (1962), *crossleyi* must be considered as a race of *G. gurneyi* and that the bird described by Sassi (1914) as *G. princei graueri*, regarded by Chapin (1953) as an immature *G. princei batesi*, represents in reality the eastern race of *G. cameronensis*, as already suggested by Sclater (1930).

When Macdonald (1949) described *Geokichla piaggiae williamsi*, only the type-specimen, collected by J. G. Williams on Mt. Muhavura, southwest Uganda, was available to him. But, after comparing this bird with the extensive series of the orange ground-thrushes in the collection of the British Museum, he found its differences with all known races of *G. piaggiae*, i.e. nominate *piaggiae*, *hadii*, *kilimensis* and *rowei*, sufficiently great to warrant description of *williamsi* from a single specimen. Macdonald also asked Sassi to compare his unique bird with the type of *oberlaenderi*, then considered a race of *piaggiae*. It seems that Sassi did not at the same time compare Macdonald's specimen with the type of *G. gurneyi tanganjicae*, a name put in the synonymy of *G. piaggiae* (Sclater 1930), although the specimen was also in the collection of the Naturhistorisches Museum in Vienna.

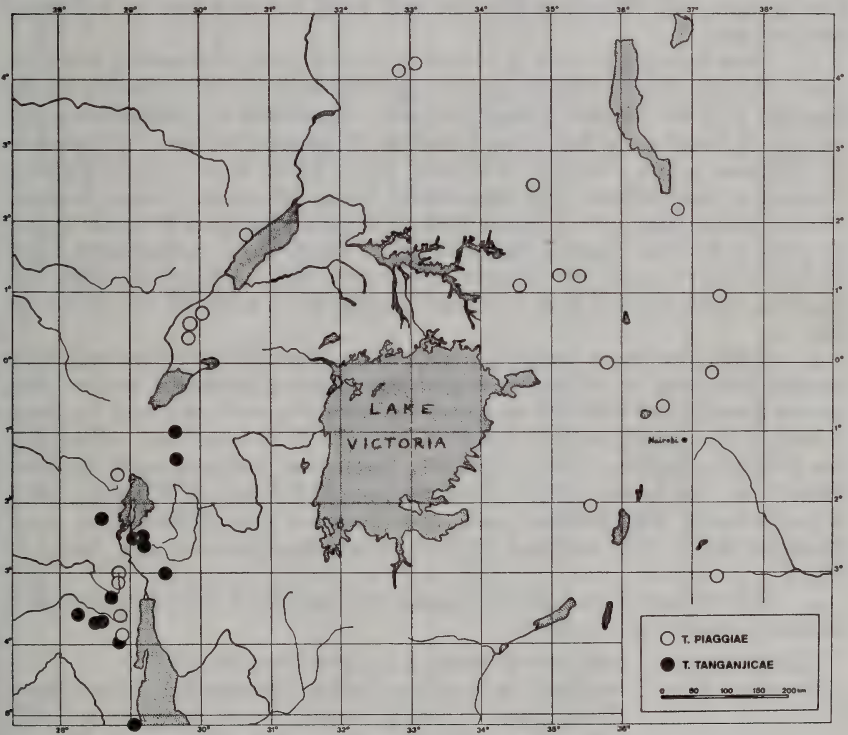

Figure 1. Distribution of *Turdus piaggiae* and *Turdus tanganjicae* in East and central Africa.

The new race was not accepted by all specialists in African ornithology. Chapin (1953) noted that *williamsi* would seem to require confirmation, and White (1962) put *williamsi* in synonymy with nominate *piaggiae*. On the other hand, *williamsi* is listed by Deignan *et al.* (1964) in Peter's *Check-list of Birds of the World* as a race of *Zoothera piaggiae*.

The sub-specific status of *Turdus piaggiae* in Zaire has remained confusing. Schouteden (1954) first admitted the presence of two races, nominate *piaggiae* and *williamsi*, but later considered all specimens as *williamsi* (Schouteden 1969).

Having collected a long series of orange ground-thrushes supposed to belong to *T. piaggiae* in eastern Zaire, especially in the Itombwe Mts., I had noticed that, on several specimens, the crown and the whole upperparts were olive, less rufous than on the others, but I had assigned these colour differences to individual variation or to immaturity (Prigogine 1971). Recently I had the opportunity to study almost all specimens collected in the montane forests along the Albertine Rift and this leads me to draw the following conclusions:

1. Most specimens have a rufous head and nape contrasting with the more olive mantle, and the rump and upper tail-coverts rufous brown also in contrast with the mantle. These specimens correspond to *williamsi* and they have been found at the following locations: Impenetrable Forest (Friedmann & Williams 1968, Keith & Twomey 1968, Keith *et al.* 1969), Virunga Volcanoes (Schouteden 1938, Macdonald 1949), Nyungwe (former Rugege) Forest (Schouteden 1966, Kunkel & Kunkel 1969, Prigogine & Vande weghe in prep.), Kahuzi Range, Itombwe Mts. (Sassi 1914, Schouteden 1969, Prigogine 1971) and Mt. Kabobo (Verheyen 1947, Prigogine 1960). All localities from which I have examined specimens of *williamsi* are shown on Fig. 1.

2. Other specimens, with the rufous colour limited to the forehead, with a more brownish or olive crown and nape passing gradually to the olive brown mantle, and with the rump and upper tail-coverts of about the same colour as the mantle, correspond to *T. piaggiae*. They have been collected in the following regions: Lendu Plateau*, Ruwenzori (Jackson 1906, Ogilvie-Grant 1910, van Someren & van Someren 1949, Friedmann & Williams 1968), Kahuzi Range (Schouteden 1969) and Itombwe Mts. (Schouteden 1954, Prigogine 1971). The localities of all examined specimens are also shown in Fig. 1.

3. The *williamsi* type and the *piaggiae* type have both been found on two mountain ranges as follows:

Kahuzi Range: *williamsi* at Bitale; *piaggiae* at Mumba.
Itombwe Mts.: *williamsi* at Ibachilo, Luiko, Musangakye, Mutombwe, Tubangwa, "Urwald westlich von Tanganyika See"; *piaggiae* at Mt. Kandashomwa, Kilumba, Kitoga, Sibatwa, "80 km westlich von Russisi", "120 km westlich von Tanganika", "Ruzizi-Kivu".

4. In all localities of these two ranges where two or three specimens have been secured, as at Ibachilo, Mt. Kandashomwa, Kilumba, Kitoga, Luiko and Mumba, they all belong either to *williamsi* or to *piaggiae*. There appears to be an altitudinal segregation of the two forms on these mountain ranges, *williamsi* being confined to lower altitudes, between 1530 and 2040 m, while *piaggiae* is restricted to higher altitudes, between 2090 and 2760 m.

5. *Turdus p. piaggiae* and similar populations from East Africa and central Africa are characterized by a high tail/wing ration varying from 78·4 to 86·1 percent with a mean of 82·2 percent (Table 1). It must be emphasized in

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*This juvenile specimen from Mt. Wago had been previously misidentified as *G. gurneyi pilettei* (Prigogine 1965).

Measurements (mm) of *Turdus piaggiae* and sub-species

Locality and sub-species	*N*	*Wing* *Range*	*Wing* *Mean*	*Tail* *Range*	*Tail* *Mean*	*Culmen from base* *Range*	*Culmen from base* *Mean*	*Metatarsus* *Range*	*Metatarsus* *Mean*	*Tail/Wing ratio %* *Range*	*Tail/Wing ratio %* *Mean*
nom. *piaggiae*											
Abyssinia	13	100 –109·5	103·5	80 – 90	84·0	19·5– 22·5	21·1	32 – 35	33·7	78·4– 84·4	80·9
Mt. Moroto	3	101 –105		85 – 89		22		33·5– 34·5		81·9– 85·6	
Mt. Elgon	2	94 – 98		76 – 81		19·5		33 – 35		80·9– 82·7	
Kapenguria	2	100 –103		82 – 83		20 – 21		35 – 35·5		80·6– 82·0	
Cherangani Mts.	2	101 –108		86 – 92		21 – 22		35 – 36		85·1	
Total	22	94 –109·5	103·2	76 – 92	84·2	19·5– 22·5	21·2	32 – 36	34·1	78·4– 85·6	82·2
*badii**	1	106		90		23		36		84·7	
kilimensis											
Mt. Kenya	2	101 –106		84 – 87		20 – 21		33 – 35		82·1– 83·2	
Aberdare Mts.	3	100 –101		83 – 86		20 – 22		35·5– 37		83·0– 86·0	
Mt. Kilimanjaro	3	95 –101		77·5– 80		20 – 21		32·5– 34		79·2– 81·6	
Total	8	95 –106	100·0	77·5– 87	82·4	20 – 22	20·9	32·5– 37	34·0	79·2– 86·0	82·6
rowei	4	97 –105	101·5	78 – 86	81·9	20·5– 21·5	21·0	33 – 34	33·8	80·0– 81·9	80·7
ssp.											
Mt. Wago	1	99		81		21		34		81·8	
Ruwenzori	5	99 –108		79 – 87		21 – 22		33 – 38		79·8– 84·0	
Total	6	99 –108	101·9	79 – 87	83·0	21 – 22	21·4	33 – 38	35·2	79·8– 84·0	81·4
ssp.											
Kahuzi Mts.	2	100 –104		83·5– 84		19·5– 21		33		81·3– 83·5	
Itombwe Mts.†	11	104 –110		85 – 91		20·5– 23		34 –37		80·0– 86·1	
Total	13	100 –110	106·3	83·5– 91	88·0	19·5– 23	21·5	33 –37	35·0	80·0– 86·1	82·7
Grand Total	54	94 –110	103·4	76 – 92	84·5	19·5– 23	21·3	32 – 38	34·4	78·4– 86·1	82·2

*Type, not measured by myself

† Including an immature male from Mt. Kandashomwa measured by J. Farrand

TABLE 2

Measurements (mm) of *Turdus tanganjicae*

Mountain range	*N*	*Wing* *Range*	*Wing* *Mean*	*Tail* *Range*	*Tail* *Mean*	*Culmen from base* *Range*	*Culmen from base* *Mean*	*Metatarsus* *Range*	*Metatarsus* *Mean*	*Tail/Wing ratio %* *Range*	*Tail/Wing ratio %* *Mean*
Impenetrable Forest	8	96 –108	102·8	74 – 80	76·4	20 – 22	21·3	33 – 36	34·5	72·1– 77·6	74·4
Virunga Mts.*	2	103·5–104		77 – 80		20 – 22		34		74·0– 77·3	
Kahuzi Mts.	1	102		73		20		34		71·6	
Nyungwe Forest	6	98 –106	103·4	70 – 77	75·8	20·5– 22·5	21·7	32·5– 34	33·1	71·4– 74·0	73·1
Itombwe Mts.	9	103·5–110	106·2	75 – 86	78·4	21 – 24·5	22·3	33 – 37	35·1	70·0– 78·2	73·9
Mt. Kabobo	4	104 –110	105·8	79 – 83	80·8	21 – 23·5	22·3	33 – 34·5	33·8	75·5– 77·1	76·4
Total	30	96 –110	104·4	70 – 86	77·5	20 – 24·5	21·7	32·5– 37	34·3	70·0– 78·2	74·2

* Including the type of *williamsi*, not measured by myself

particular that the "olive" birds from Kahuzi and Itombwe have exactly the same high value for this ratio as other specimens of this species (see Table 1). On the other hand, *williamsi* has a small tail/wing ratio varying from 70·0 to 78·2 percent with an average of 74·2 percent (Table 2).

6. I have not found specimens with intermediate characteristics.

In view of the clear morphological differences and the distribution (Fig. 1), it appears best to regard *williamsi* and *piaggiae* as specifically distinct. There remains, however, a problem of nomenclature. When he published the description of *williamsi*, Macdonald (1949) overlooked the fact that a similar bird had been described in 1914 by Sassi as *Geokichla gurneyi tanganjicae*. Thanks to the extreme kindness of Dr. H. Schifter I was able to examine the type of *tanganjicae*. It is indeed a juvenile "rufous headed" bird. In consequence, *Turdus williamsi* (Macdonald) is a synonym of *Turdus tanganjicae* (Sassi) and the new species must take this name.

Thus, two species of orange ground-thrush inhabit some of the mountain ranges along the Albertine Rift:

Turdus piaggiae, a widespread species, distributed from Ethiopia to Tanzania, but found also on Lendu Plateau, Ruwenzori, Kahuzi and Itombwe;

Turdus tanganjicae, a more localized species, recorded from the Impenetrable Forest, the Virunga Volcanoes, the Nyungwe Forest and the Kahuzi Range south to Mt. Kabobo.

The two species live in proximity, but are altitudinally separated in the Kahuzi and Itombwe ranges. Their altitudinal distribution is characterized as follows (Prigogine 1975):—

	T. piaggiae	*T. tanganjicae*
Number of specimens	7	9
Mean altitude	2390 m	1865 m
Normal altitudinal limits	2100–2760 m	1660–1980 m
Altitudinal limits	2090–2760 m	1530–2040 m

On the other hand, Macdonald's type of *williamsi* (=*tanganjicae*) was collected at 2900 m, an exceptionally high altitude for this species. The first specimen known from the Virunga Volcanoes was secured at Burambi, also at the unusually high altitude of 2325 m. Thus, where *T. piaggiae* seems to be absent, as on the Virunga, *T. tanganjicae* ascends to higher altitudes. Likewise, only *T. piaggiae* has been recorded from the Ruwenzori Range where it has been collected principally between 1800 and 2700 m. A young male was obtained even at 1700 m, at Burusi (Prigogine 1965). Thus, on Ruwenzori where *T. tanganjicae* is not present, *T. piaggiae* comes down to lower levels than on the Itombwe and Kahuzi Mts.

The altitudinal separation in these ranges may thus indicate competition and mutual exclusion of two species of very similar measurements, presumably due to food and other ecological requirements.

As *T. piaggiae* and *T. tanganjicae* seem confined to different altitudes on the two mountain ranges where they are sympatric and are allopatric elsewhere, they can be considered as members of a superspecies.

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Euplectes diadematus and *Colliuspasser axillaris* breeding in Somalia

by Larry C. Holcomb

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Mackworth-Praed & Grant (1955) could give no breeding records of *Euplectes diadematus* except one in breeding condition in April in Kenya. Williams (1962) and Van Someren (1971) have since reported definite breeding in Kenya. Williams stated that the species has a restricted distribution that includes eastern districts of Somalia, but gave no evidence for breeding in Somalia, although R. G. Allan has suggested to me that this species has probably nested near Mogadiscio.

During and following the long rains of 1975, I found *E. diadematus* nesting in Somalia, 10 km south of Afgoye, in and around the periphery of an irrigated rice scheme. Two displaying males were collected on 21 July, when at least 30 other males were seen, but no females. At 0830 on 12 August I found a nest with one egg, 24 cm above the ground in a tight tangle of grass in a fallow field. The female remained nearby. At 0915 on 16 August, the same nest held three eggs with dimensions between the ranges of 13·0 × 17·7 mm. The nest and eggs were collected.

On 8 September 1975, in a 100 m stretch of ground lying along an irrigation ditch between two rice fields I found seven *Euplectes orix* nests and two *Euplectes diadematus* nests. The *E. orix* nests were 30 to 150 cm above the ground, firmly woven and built in large annual plants and small bushes. In contrast the *diadematus* nests were not more than 30 cm above the ground built into the top of the mat of dense vegetation. The *orix* nests contained eggs or nestlings. One nest of *diadematus* contained three eggs and the other contained five eggs and two nestlings which were 7–8 days old. I cannot account for the mixture of eggs and nestlings in the same nest and since these eggs were not opened, the time of laying was not determined. Seven eggs would be quite exceptional for one female of *E. diadematus*. There is a possibility that this was a nest in which more than one female laid eggs. The C/3 eggs weighed 1·5 g, dimensions between the ranges of 12·8 × 18·1 mm. The two *diadematus* nests were about 50 m apart, one of them within 3 m of two *orix* nests. These details of clutch size, eggs, egg size and nests agree with Williams (1962) and Van Someren (1971), but whereas in southern Somalia *E. diadematus* breeds at least in August and September, breeding in Kenya occurs in January and May.

I agree with Van Someren (1971) that *diadematus* appears to be monogamous; but he also reported competition between *diadematus* and *orix* for herbaceous plants to use as nest sites or territorial posts for males, whereas the difference in the niche which I observed for *diadematus* nests (ie. at the top of a grass mat) and those of *orix* (higher above the ground and in annual plants and small bushes) suggests that if there is adequate suitable habitat these two species may co-exist without competition.

The crop and stomach of 14 male and 5 female *E. diadematus* collected between 26 July and 24 September contained only small grass seeds (perhaps *Echinochloa*). Although *orix* was frequently observed feeding on rice there was no evidence of *diadematus* doing so.

In the same area I also found *Colliuspasser axillaris* (probably *C. a. phoeniceus*) breeding during and following the long rains of 1975. There was one territorial male every 0·5–1·5 hectares throughout six 36-ha fields of irrigated rice. Mackworth-Praed & Grant (1955) give no breeding or distribution records for Somalia.

My first sight of the species was in mid-July. One male was collected in full breeding condition on 21 July and one nest with three eggs and supported by rice stems was found on 15 August. Another nest, also supported by rice stems, was found on 8 October containing three nestlings, nearly ready to fledge.

All six males and two females collected 1 August–8 October had been eating rice from the cultivated fields. Six of these individuals were eating small grass seeds and insects in addition to the rice.

To my knowledge no one has reported nesting in grain fields. The description of Mackworth-Praed & Grant (1955) was of nesting in grass tufts over water, not significantly different from conditions in which I found them except that in cultivated fields the irrigation water would be present only periodically, and the nests were not grouped.

These observations were made whilst I was engaged in work for the Food and Agriculture Organization of the United Nations, RAF 73/055 'Research into Control of Grain-eating Birds' and the Ministry of Agriculture of the Somali Democratic Republic. I thank R. G. Allan and J. J. Jackson for comments on this paper.

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Re-discovery of the Andean Condor *Vultur gryphus* in Venezuela

by B. Zonfrillo

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Phelps & Phelps (1958) summarise the published records of Andean Condor *Vultur gryphus* in Venezuela as " . . . known in the country by two specimens in the British Museum, from the cordillera de los Andes near Merida, the most recent collected around the year 1912, according to Swann 1921 ". De Schauensee (1971) re-iterates this information and, more recently, Alden (1975) recommends excluding the species as occurring in Venezuela.

On 7 July 1976, on the road from Merida to Jaji, near the waterfall at La Chorrera (30 km from Merida), R. A. Jeffrey, G. T. White, E. M. & R. W. Forrester and myself sighted a condor flying along the mist-enshrouded cliffs above the waterfall. Later, on a wooded cliff face, about 3 km nearer Jaji, we saw two Andean Condors on a broad, recessed cliff ledge where they had just landed. Both birds were adult, one a male. For a while the wings were spread in typical vulture pose, showing the large silvery-grey patches on the upper wing surfaces. The head wattle of the male was visible when viewed with a 55 × telescope. When soaring, the white neck ruff was the most distinctive feature, even at considerable distance. In the air, the big birds appeared very manoeuverable, dangling the talons when banking prior to landing. After taking off, one Condor showed considerable aggression towards a Black Vulture *Coragyps atratus*, which it dwarfed completely. The birds were photographed in the air and at rest, at ranges down to 200 m. After soaring around for some time both Condors flew out of sight.

It is not known if the 1912 birds were breeding. The birds at La Chorrera appeared to be on a ledge suitable for breeding but no signs of nesting were visible. The nearest known breeding localities of *V. gryphus* are the Santa Marta Mts. and Andes of Colombia, where the species is described as "rare and local". These Condors are probably recent newcomers to this area of Venezuela, as it seems unlikely that such large birds would remain unseen for any length of time, particularly so near to a well-used road.

My thanks are due to Dr. Chris Parrish of Caracas for his help with research and translation.

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The Blue Rock Thrush of East Asia, *Monticola solitarius philippensis* (Muller), in the Moluccas

by Eberhard Jany

Received 11 October 1976

The subspecies of the Blue Rock Thrush *Monticola solitarius* breeding in eastern Asia from Japan and Ussuriland (Soviet Union) to N. China and Taiwan is *M. s. philippensis* (Müller). The northern populations migrate and winter from Thailand in the north eastward to the Palau Islands (i.e. Koror, *c.* 134° 35′ E), and in the south, as far as we know, to the islands between Banda Sea and Arafura Sea (to *c.* 132° E). The Moluccas, situated directly south of the main breeding area of northeast Asia between Japan and Manchuria, are in the middle of the southern island groups and seem to be favoured winter quarters of the Blue Rock Thrush—which is one of the 24 northern species wintering there (Mayr 1953)—and which provide a profusion of coastal habitats, shores and banks, the species' known ecological preference in Japan (Jahn 1942, Austin & Kuroda 1953).

Dutch zoologists in particular have visited the Moluccas at different times. References to the Blue Rock Thrush by van Bemmel (1948) concern Halmahera, Ternate, Tidore, and Sulabesi in the North Moluccas, and in the South Moluccas Buru, Ambelau, Amboina, and Kur in the Watubela group, to which can now be added Pulau Tapa, between Batjan and Obi.

G. A. L. de Haan visited the North Moluccas in 1952 and 1953, and A. M. R. Wegner in 1953 (see Jany 1954, 1955), when the avifauna was hardly known. When I received the collection made by De Haan, skin no. 1927 was wrongly labelled as a cuckoo-shrike (Campephagidae), and I now find it is a juvenile male Blue Rock Thrush, shot in the Kampong Tapa on Pulau Tapa on 9 Nov 1953 (Fig. 1). It weighed 53 g, wing 121 mm, the iris was dark brown, bill and legs black. The plumage colour corresponded more or less with that of the juvenile male in plate 16 in Kobayashi (1956), though the chestnut underparts are much more limited. The Pulau Tapa bird was not nearly so dark as the adult male illustrated in King *et al.* (1975: plate 51).

The body feathers are new, those of wing and tail badly worn. This stage of moult in November resembles more or less that of birds in October from Buru (Siebers 1930) and in February from North Clelebes (Stresemann 1941). We can assume therefore that the body feathers are moulted before or during the winter, but that wing and tail feathers are moulted later, on the breeding grounds.

The wing lengths of male birds from Buru and Pulau Tapa vary between 121 and 125 mm. These measurements fall within the range given by Vaurie (1955) from Manchuria to the Philippines (116–128 mm), with no visible cline, and from Japan (115–129 mm) published by Kobayashi (1956). Though Vaurie demonstrates this with detailed measurements he also states (1959: 358) "In *philippensis*, the populations from the north have a longer wing, and a cline of decreasing size runs from north to south".

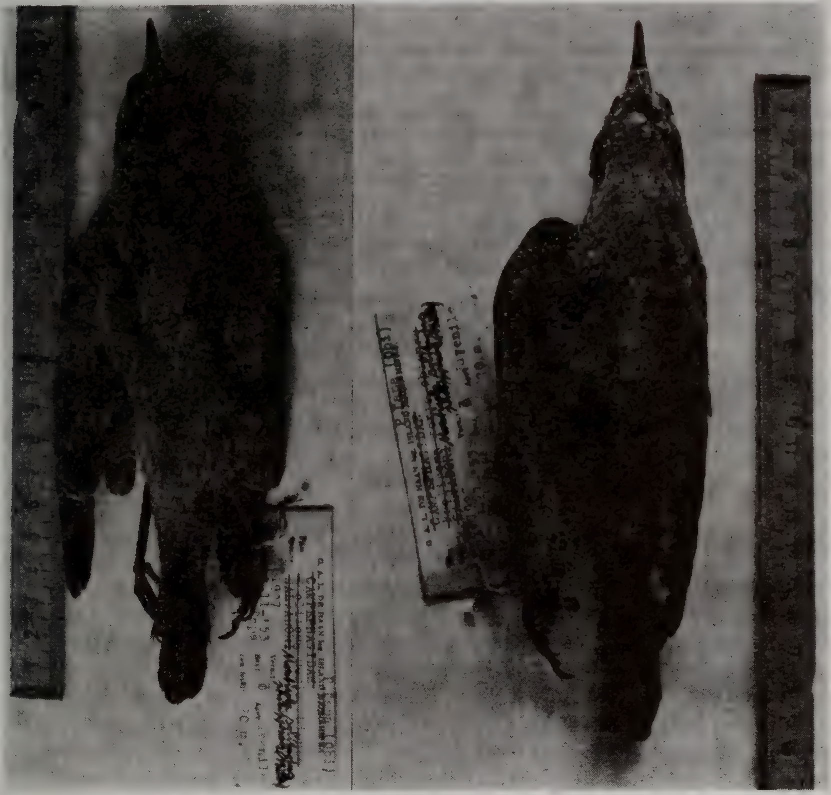

Fig. 1. Juvenile ♂ Blue Rock Thrush *Monticola solitarius philippensis* from Pulau Tapa (north of Obi, Molluccas), 9 Nov. 1953, leg. G. A. L. De Haan.

The Blue Rock Thrush arrives for the Moluccan winter in October and stays at least to the end of March. For Brunei, in N. Borneo (Kalimantan), Smythies (1960) gives 18 Oct to 19 Apr. In Japan the Blue Rock Thrush starts to sing in March (Jahn 1942) or April (Austin & Kuroda 1953), which suggests that this species migrates north from the Moluccas to its breeding grounds in northeast Asia over a very short period, either directly north via the Philippines or more northeasterly via the west Pacific.

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Extension of Range of the White-headed Robin-chat *Cossypha heinrichi*

by I. D. Harrison

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On 5 October '75, in a small clump of thick woodland in a reserve of the Départment des Eaux et Forets named Bombo-Lumene, Zaire (4° 30′ S, 16° 8′ E.), five birds were seen which, from their behaviour and plumage were clearly of the genus *Cossypha*, but which could not be identified. One was therefore trapped and a full description taken. Six days later two birds were caught there and a single bird was seen the same day in similar habitat bordering a marsh *c.* 1 km from the original site. One of the birds caught was sent to the British Museum (Natural History) and proved to be *Cossypha heinrichi*, discovered in 1954 (Rand, 1955, *Fieldiana* 34, No. 31) in northern Angola and not previously recorded within 500 km to the south.

The B.M. specimen was an adult male with testes measuring 5 mm and 4 mm, wing 120, tail 147, bill 20, tarsus 37 mm. The eye was reddish-brown, the legs slate, the bill black and the plumage much brighter than that of other birds caught at the same time. The plumage of two other adults also agreed with Rand's description except that the eye colour was sandy-brown. The eye colour differed in all three birds from that given by the Yale Peabody Museum (*Bulletin* No. 95. 14.2.1966), which describes it as "purplish-red in adults and blackish-brown in juvenile and sub-adult specimens". This may be due to description after postmortem changes had occurred or might indicate geographical variation. The soft parts were the same colours in all three birds, but the primaries and secondaries of one of the two birds caught were badly abraded. Wings 118, 111, tails 132, 134, bills 21, 20, tarsi 36 mm.

On 22 November '75 five birds were seen in the original clump of woodland, including a single juvenile not long out of the nest: the yellow gape was conspicuous and it was still being fed by two adults. The juvenile plumage agrees with the description given by Rand except that the head and neck were more rufous than ochraceous, as also was the breast. The scaled appearance was restricted to the head and upper breast. Two of the five birds were moulting out of juvenile plumage and had underparts similar to the juvenile, with only a faint scaled appearance, the head patched white and rufous. This was possibly first year plumage or even first year moulting into adult plumage.

Subsequently four further sites were discovered in the area (up to 15 km away) and a bird, almost certainly of this species was glimpsed 550 km north-northeast near Mbandaka (on the equator, 18° 24′ E.). In all cases the habitat was the undergrowth of thick tropical forest (*not* gallery forest) which occurred in isolated patches in savanna with scattered bushes and small fire-resistant trees. The largest of the sites was *c.* 1½ km square and the smallest *c.* 100 m square.

The species is known to be very elusive, either keeping to the ground or moving through thickets up to 3 or 4 m above ground. Food appeared to be small insects and a party of four birds was once seen feeding on ants on the branch of a tree. The stomach of the specimen sent to the British Museum contained "fragments of beetles and ants".

There is thus a population of *Cossypha heinrichi* in western Zaire, extending its previously known range considerably; but further observations are necessary to establish if the range is restricted to between northern Angola and western Zaire or whether it extends considerably to the north and east of that area. Breeding occurs definitely about September to November, during the beginning of the rainy season.

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Halcyon gambieri gambieri Oustalet, an extinct Kingfisher from Mangareva, South Pacific Ocean

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Oustalet (1895) described a kingfisher collected at Mangareva, in the Tuamotu archipelago, in 1841 on the second Antarctic expedition of Dumont d'Urville as *Halcyon gambieri*. In the original description Oustalet commented on the similarity of this specimen to *Halcyon reichenbachi* of the Caroline Islands, 70° latitude west in Micronesia. Murphy (1924a) described a similar kingfisher from Niau, 780 miles north of Mangareva as *Todirhamphus gertrudæ*, in apparent ignorance of the bird described by Oustalet. Berlioz (1939), however, considered that from comparison of the type of *Halcyon gambieri*, which he examined at the Muséum National d'Histoire Naturelle (Paris), with Murphy's description, *T. gertrudae* should be regarded as a synonym of *H. gambieri*, and that *H. gambieri* differs from *H. reichenbachi* in the form of the bill. Peters (1945), also, mentions that *T. gertrudae* may be a synonym of *H. gambieri*, and it has recently been suggested that it might be a Micronesian species (du Pont 1976).

Re-examination of Oustalet's *H. gambieri* type in the Paris Museum and comparison of a description, sketch and photographs of it with specimens of *T. gertrudae* in the American Museum of Natural History and the British Museum (Natural History) prompt a re-assessment of the status of these forms. As pointed out by Berlioz (1939), both forms have a broad bill with a wide tip, whereas in contrast, all Micronesian kingfishers without exception have very long bills with a laterally compressed tip. Comparative measurements of *gambieri* and *gertrudae* are very similar, but, suggest that the bill of the type of *gambieri* is a little shorter and wider than that of *gertrudae* and its tarsus and tail may be slightly longer (measurements in mm, averages in brackets):

	Flat wing	*Tail*	*Culmen from nares*	*Culmen width at nares*	*Tarsus*
Type of *H. gambieri*	92·5	69·5 (worn)	27·4	12·2	18
H. gertrudae					
5 males	87–94 (90)	62–68 (66)	29–31 (30)	10·9–11·7 (11·5)	16–17 (16)
3 females	90·5, 92·5, 90·5	64, 66, 65	30, 31, 28·5	11·5, 11·8, 10·5	15, 16, 16

The type of *H. gambieri* is apparently in adult plumage as it lacks the pale fringes to the wing-coverts that are present in immatures of other Polynesian kingfishers. It differs from adults of *gertrudae* in having the underparts white without any wash of cinnamon-buff, the hind-neck whiter with little rufous suffusion (this is probably not due to fading as the crown is as rufous as in *gertrudae*) and in having a distinct narrow black line across the nape, separating the rufous of the crown from the white of the hind-neck (cf. description in Murphy 1924a, plate accompanying Murphy 1924b). In view of these differences it seems best to name

> the Mangareva kingfisher *Halcyon gambieri gambieri* Oustalet,
> and the Niau kingfisher *H. gambieri gertrudae* (Murphy).

The English name Tuamotu Kingfisher seems appropriate for the species as a whole.

There can be little doubt that the Mangareva kingfisher was extinct by 1922 when Ernest Quayle (MS.) searched extensively for landbirds on Mangareva without finding a kingfisher. He noted that considerable deforestation had occurred and that cats, rats, goats and dogs were present on the island. Quayle wrote also that the sandpiper *Aechmorhynchus* (=*Prosobonia*) *cancellatus* could not be found on Mangareva, but was common on some off-lying islets not cursed with the introduced predators. More recent visitors have also been unable to find a kingfisher on Mangareva (Thibault 1973, Lacan & Mougin 1974), so it is most likely extinct along with other little-known landbirds formerly found in the Bambier Islands (Holyoak & Thiabault, in prep.).

However, the subspecies, *H. g. gertrudae*, survives in considerable numbers at Niau, where the total population was estimated as 400–600 birds by J. C. Thibault in 1974.

We are grateful to the departments of ornithology of the American Museum of Natural History, British Museum (Natural History) and Muséum National d'Histoire Naturelle for facilities to examine specimens in their care, to James C. Greenway, Jr., for helpful comments, to Christian Erard for help while working in the Paris Collection and to Claud Rives for the courtesy of obtaining photographs on our behalf.

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The display of the Scarlet-horned Manakin *Pipra cornuta*

by D. W. Snow

Received 13 October 1976

The Scarlet-horned Manakin *Pipra cornuta* is the only species of manakin confined to the highland area of southern Venezuela and adjacent Guyana and Brazil, the region for which Mayr & Phelps (1967) coined the name Pantepui, and in which they list four endemic bird species without known relatives, including *P. cornuta*. It used to be placed in a monotypic genus, *Ceratopipra*, on the basis of the pair of backwardly directed "horns" formed by the elongated feathers of the hind crown, but such modifications in the male's display plumage are common in manakins and do not justify generic separation. Recent authors generally place the species in *Pipra*. The male is black with a scarlet head and throat, white iris, and scarlet thigh feathers. The two "horns", in life, project backwards and slightly upwards, diverging a little. The colour pattern is similar to that of four other species of *Pipra* which have red or orange crowns (*erythrocephala*, *rubrocapilla*, *chloromeros* and *mentalis*), the main difference being that the red on the head is more extensive in *P. cornuta*. Females are olive green, as is usual in the family. *P. cornuta* is a good deal larger than other *Pipra* species. The wing-length of adult males averages about 66·5 mm, and the weight (four specimens) 23·5 g. Equivalent figures for *P. erythrocephala*, the member of the red- and orange-crowned group with which *P. cornuta* is partly sympatric, are 56·7 mm and 12·8 g (Snow 1962).

Pipra cornuta has long been thought to occur sporadically in lowland forest near the Amazon as well as in the Guiana highlands, so that Mayr & Phelps (1967) qualified their statement that it is endemic to Pantepui; but almost certainly it does not extend into lowlands. Haffer (1970, footnote p. 308) showed that the "Rio Marou", where Natterer collected the first specimens, was probably not near Manaus, as had been supposed, but in the upper Rio Branco area. The other record on which the supposed extension of the range into the lowlands was based is equally doubtful. Bates (1863) mentioned collecting it at Obidos; but there is no specimen extant, and his reference to three males apparently engaged in a kind of dance, close together on a low branch, makes it almost certain that what he collected was *Chiroxiphia pareola*, which occurs near Obidos and displays in this way. As will be shown, the display of *Pipra cornuta* is quite different.

In the course of a visit to the Gran Sabana of Venezuela (the highlands in the southeast of the State of Bolívar) in March and April 1976, I was able to observe the courtship display of *Pipra cornuta* in forest at an altitude of 950–1050 m near the mission station of Kavanayén. At the time of my visit it seemed not to be very numerous in the area; in four days of field-work I found two display grounds in forest below the mission station, and during a 5-day visit to the forest on the slopes of Ptari-tepui, 15–20 km from Kavanayén, at altitudes between 1100 and 1600 m, I heard only a single bird calling, although I was by then familiar with the sounds associated with the display. Below about 1100 m, both at Kavanayén and on Ptari-tepui, the Golden-headed Manakin *P. erythrocephala* also occurred, and in one place there were display grounds of both species within a few hundred metres of each other in the same kind of forest.

The two display grounds of *Pipra cornuta* I found were both in primary forest, one on level ground and the other on a steep slope. At both places there were two adult males, the centres of whose display and calling areas were about 25 m (level forest) and 30 m (sloping forest) apart. With such a small sample it cannot, of course, be concluded that males normally display in groups of two; the small size of these two leks may simply have been a consequence of a locally low population density.

The males' general routine was much as in other *Pipra* species. I was unable to obtain accurate data on the percentage of time that the birds were present, but they were certainly present in their display areas for nearly all the time between 0900 and 1630 hrs, and I did not see them feeding at all while they were there. For most of the time they kept to an altitude of 10–15 m above the ground, not confining themselves to any particular perches, though some groups of perches were clearly preferred, but moving round a good deal in an area about 20 m across. Intermittent calls were given, with a distinct tendency for a call by one bird to be answered by the other, and there were occasional outbursts of display which also tended to be synchronised. The displays, described below, were performed on slender horizontal perches at heights between 5 and 15 m. Occasionally the two males came together in a tree between their display areas, where they would spend up to 15 minutes perched in close proximity and quite silent. They would be restless, constantly moving from perch to perch, as if jockeying for position, always facing away from one another. Occasionally one would make a short backward "slide" along its perch towards the other.

THE DISPLAYS

The names given to the various elements of the displays are the same as those used for *Pipra erythrocephala* (Snow 1962) and *P. aureola* (Snow 1963).

All bouts of displays that were seen appeared to begin spontaneously, i.e. without the presence of a female; but, as already mentioned, display by one male tended to stimulate the other to display. Bouts of display usually lasted for 1–5 minutes. It seemed probable that during the period of observations (7–16 Apr) the local females were not visiting the display grounds, at least during the middle of the day, though the breeding season should have begun.

Vocal and mechanical sounds. As mentioned, males call intermittently when they are present in their display areas. Calls are one- to four-syllabled, abrupt, and either high-pitched or of a nasal quality, or a combination of both. The commonest is a trisyllabic *wrrt-pit-arrk* (Fig. 1, B), sometimes preceded by a *pit* to produce a fourth syllable. Less frequently given is a sharp disyllabic *ker-zeek*, and a monosyllabic *zeek* similar to, but less loud than, the second syllable of the *ker-zeek*. Two sounds are associated with the displays and are described in context below: an explosive, mechanical wing-noise, and a sharp buzzing call.

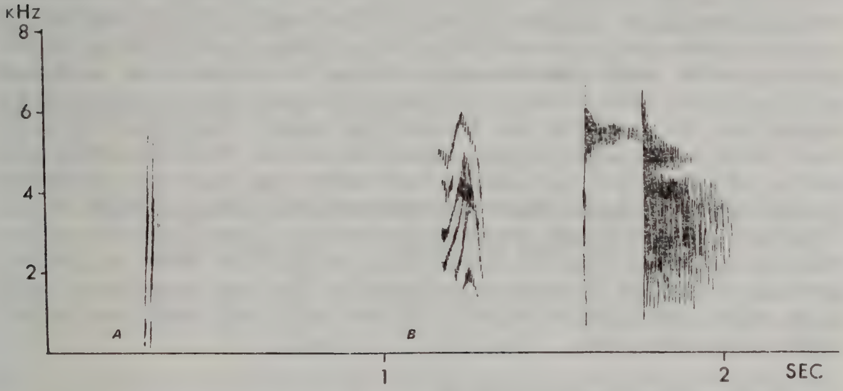

Figure 1. Sonagrams of (A) the mechanical wing-noise (*prrt*) made during display, and (B) the trisyllabic *wrrt-pit-arrk*. The mechanical wing-noise consists of two very brief sounds, with energy evenly distributed over a wide frequency range, separated by an interval of about 0·015 sec (4 measured).

Backward slide. With its body orientated along or nearly along the perch, head held low, wings raised a little, tail slightly depressed, and legs stretched so that the red thigh feathers show, the bird takes rapid and very short steps backwards for about 15 cm along the perch, so that it seems to slide. At the end of the slide, two things may happen: (1) most often, the wings are suddenly vibrated with extreme rapidity, producing an explosive *prrt* (Fig. 1, A) and the bird jumps forward about 15 cm as if propelled by the force of the "explosion". Immediately on landing the slide may be repeated, and the bird may continue for several seconds sliding backwards and jumping forwards. When the backward slides and forward jumps are repeated without pause, the intervals between successive jumps are about 1·4–2·2 seconds (based on sound recordings of three display bouts totalling 12 jumps). (2) Less often the slide ends silently, the wings being momentarily spread horizontally and the tail fanned at the end of the slide. When the slide ends thus the bird does not jump forward but, temporarily at least, the display ends.

Side-to-side slide. With its body orientated transversely to the perch the bird "slides" (i.e. takes very short steps) rapidly sideways about 10 cm. At the end of the slide, the explosive *prrt* wing-noise is made and the bird jumps back to its original position. This display is clearly a variety of the backward slide, and intermediates between the two occur; but in their extreme forms the body is orientated so differently with respect to the perch that the displays appear very different.

Display flight. The bird leaves its perch (referred to in what follows as the main perch) and flies with a downward and then upward trajectory to another perch at about the same height and 10–20 m away. After about 10 seconds (limits of those timed, 5–12 seconds) it returns to the main perch with rapid flight, again with a downward and then upward trajectory as it approaches the perch. It may then either land silently on the main perch, after which it usually immediately executes one or more backward or side-to-side slides; or it lands with a single or multiple (up to five) buzzing call, at the same time clinging to the perch and fluttering its wings. In contrast to the backward and side-to-side slides, which it performed on many different perches in its display area, the male that was watched for longest always used the same main perch for its display flights, a nearly horizontal, thin side branch near the top of a small and very slender under-story tree, about 5 m above the ground, which was in fact the lowest of all the perches that it was seen to use. This bird also occasionally remained for a minute or two on the perch to which it had flown from the main perch, and did a few slides on it before returning in display flight to its main perch. Too few observations were made on the other males to establish whether they always made their display flights to the same perch.

COMPARISON WITH OTHER MANAKINS

In the general organization of its display behaviour and the details of the displays, *Pipra cornuta* is very similar to the small red- and orange-crowned manakins *P. erythrocephala*, *rubrocapilla* and *mentalis*, which it also most closely resembles in plumage pattern. (The display of *P. chloromeros* is unknown.) Thus the side-to-side slide of *cornuta* also occurs, but without the mechanical noise, in *mentalis*. A backward slide very similar to that of *cornuta* is performed by *erythrocephala* (Snow 1962) and *rubrocapilla* (Sick 1967). The display flight is performed, with variations, by all of them. The behaviour of two males, when they come together on neutral ground between their two display areas, seems to be identical in its essentials in *cornuta* and *erythrocephala*. The same display elements also occur in the red-and-yellow-headed manakins of the *Pipra aureola* superspecies, but these latter are distinct in colour pattern and have some peculiar features in their display (Snow 1963, Snow & Schwartz in prep.), and are probably less closely related.

The evidence thus shows that Haffer (1970) was correct in treating *P. cornuta* as a close relative of *P. erythrocephala* and its allies. It should not, however, be included in the same superspecies, as he did, since it is not only broadly sympatric with *erythrocephala* but actually syntopic where the altitudinal ranges of the two species overlap. Its morphological distinctness, and the fact that it most closely resembles *erythrocephala* and *rubrocapilla* in one part of its display (the backward slide) and *mentalis* in another element (the side-to-side slide, absent from the repertoire of *erythrocephala* and *rubrocapilla*), suggest that it is an early derivative of a stock that later became differentiated and gave rise to the *erythrocephala* superspecies.

Acknowledgments

I am grateful to the Royal Society and to CONICIT, the Venezuelan national scientific research organization, for grants enabling me to visit Venezuela; and to Dr. William H. Phelps, Jr., and Sr. Ramon Aveledo H. for permission to study specimens in the Phelps collection in Caracas. The weights of *Pipra cornuta* are from specimens in the Phelps collection.

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Relationships between the two races of the San Blas Jay *Cyanocorax sanblasiana*

by John William Hardy & Ralph J. Raitt

Received 22 December 1976

The nominate race of the San Blas Jay *Cyanocorax s. sanblasiana* is apparently restricted in range to the narrow coastal plain of the state of Guerrero, Mexico, from *c.* 70 km southeast of Acapulco to *c.* 100 km northwest of that city (Miller *et al.* [Eds.] 1957—Pacific Coast Avifauna 33: 1–436). We began a long term comparative study of this and other, allopatric, closely related jays in July 1974, in relation to their ecology and behaviour, making a special effort in summer 1975 to discover the distributional relationships between the two races of the San Blas Jay, *C. s. sanblasiana* and *C. s. nelsoni*. We drove along the narrow coastal plain northwest from Acapulco toward Zihuatanejo (see Fig. 1), stopping frequently to look for jays, to broadcast sounds of their voices to attract them, to study the habitat, and to question local residents about the existence of jays in their particular areas.

The nominate race seems to breed entirely in coconut palm plantations northwest of Acapulco and southeast of the city at least partly in such plantations, but also in native broadleaved evergreen scrub. Breeding distribution is patchy: where family breeding units are found, the species seems common, but nearby in seemingly identical habitat, the birds may be absent or rare. Distribution to the south apparently ends where the coastal plain narrows and the hills reach the ocean southeast of Acapulco. Northwestward from Acapulco, seemingly appropriate habitat of palms continues for *c.* 155 km, to where the coastal plain and the palms terminate in hills, southeast of Zihuatanejo. Yet the jay has not been recorded farther northwest than Tecpan de Galeana, 104 km by road from Acapulco; and at El Llano, 24 km farther northwest where palms are abundant, Mexican farmers told us that the jay does not occur. There is thus a hiatus of 200 km northward from Tecpan to the southeasternmost point of known occurrence of *C. s. nelsoni* at La Lagunilla. This geographic separation of the two races, previously only implied in the literature, makes it easier to understand the racially distinctive plumage and softparts of the two races first suggested by Davis (1960, *Condor* 62: 215–219), differences that seem closely related to their social behaviour, as predicted by Hardy (1976, *Wilson Bull.* 88: 96–120). In one captive bird of the nominate race, Hardy (1974, *Bird-Banding* 45: 253–268) had detected a difference in their social-alarm calls comparable in degree to their differences in external morphology, encouraging further field investigation.

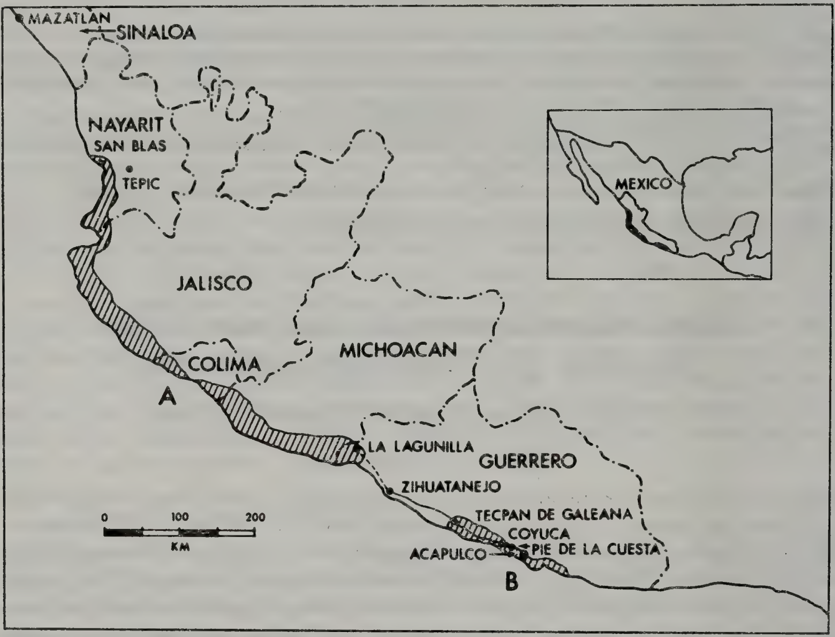

Figure 1. Geographic ranges of the two races of the San Blas Jay *Cyanocorax sanblasiana*. A, *nelsoni* and B, *sanblasiana*.

Occurrences of jays at La Lagunilla and Tecpan de Galeana are substantiated by museum specimens.

In museum specimens of *C. s. sanblasiana* Davis (1960 *op. cit.*) could find no birds indicating the existence of intermediate phenotypes between early first year and adult stages, which suggested to him that birds of this race, unlike those of *C. s. nelsoni*, attained the adult phenotype (like that of *nelsoni*) by one year of age. Adults in both races have yellow irides and black bills. First year birds (to yearling age) were distinguishable from adults by plumage wear associated with lack of moult of remiges and rectrices.

The apparent acceleration of change to adult phenotype detected by Davis seems to have been an artifact of the series of specimens examined. Our field work on *C. s. sanblasiana* has revealed that there is not only a distinctive first year plumage, but also a 2-year-old stage as well, both distinguishable in the field from the adult stages. There are, however, clear-cut differences in these stages between the two races of the jay (Table 1).

TABLE 1

Differences in plumage and softpart in
Cyanocorax s. sanblasiana and *C. s. nelsoni*

	Bill Colour	*Crest*	*Irides*
Yearlings			
sanblasiana	black	prominent	dark brown
nelsoni	particolour	more prominent	dark brown
2-year olds			
sanblasiana	black	absent	brown to dark greenish-yellow
nelsoni	black	present	dark brown
3-year olds			
sanblasiana	black	absent	greenish-yellow to like adult
nelsoni	black	remnant	brown
Adults			
sanblasiana	black	absent	yellow
nelsoni	black	variable remnant	♂ brownish to greenish-yellow; ♀ yellow

Yearling *sanblasiana* have black bills, which may show some greyish or whitish marks on the inside, whereas the bills in yearling *nelsoni* are particoloured black and horn. We confirmed the existence of the 2-year-old stage in *sanblasiana* by marking two yearlings in 1974 and recapturing them a year later. Age stages in *nelsoni* had previously been determined by maintaining captives from juvenile and yearling age for 2 to 3 years. While the crest in 2-year-olds of *nelsoni* is less prominent than in yearlings, it is still visible in the field; but in 2-year-old *sanblasiana* two or three wispy crest feathers may be evident only in hand held birds. There is no third-year stage in *sanblasiana* easily and consistently distinguishable from the adult as may exist in *nelsoni*. A 3-year-old captive female *nelsoni* had dark brown irides, intermediate to those of 2-year-old and adult birds until she was at least 39 months old. At her death at about 42 months her irides were olive (Hardy 1973 *op. cit.*). We ringed several 2-year-old *sanblasiana* June–July 1975, and in 1976 recaptured them as well as some yearlings ringed in July 1974, and no differences from adults were apparent. One known 3-year-old *sanblasiana* had yellow irides like those of birds judged to be 4 or more years old, while two 3-year-olds, examined in the hand, showed greenish or brownish yellow murkiness around the pupils or peripherally to the otherwise yellow irides, not detectable in the field through binoculars. Hardy (1974 *op. cit.*) detected sexual dichromatism in iris colour in adult *nelsoni*, 8 females having yellow irides and 3 males having brownish to greenish yellow irides. An examination in the wild of 26 adult *sanblasiana* detected no such dichromatism, iris colour varying from yellow to yellow with a very faintly greenish cast.

In *nelsoni*, 9 females averaged 104 g in weight (92–112 g), whereas 5 males averaged 121 g (117–123 g). In *sanblasiana*, 14 females, distinguished on the basis of breeding roles or brood patches, averaged 107 g (94–118 g, only one bird exceeding 114 g); 12 males distinguished on the basis of breeding role or cloacal protuberance, averaged 116 g (112–119 g). Thus in adults of both races, females are significantly lighter than males.

The social-alarm calls of the two races of San Blas Jay are distinguishable by ear and by sonographic analysis (Fig. 2). In *nelsoni* this call is a rather uniform nasal-sounding chatter; in *sanblasiana*, to the chatter is added consistently another component, which is a more sustained, downwardly inflected cawing sound resembling the typical component of the social-alarm call of *C. melanocyanea* of Central America and the cawing sound of *C. beecheii*. When individuals of *C. beecheii*, *C. yucatanica*, *C. melanocyanea* and *C. sanblasiana* are confronted with a tape recorder playback of their own social-alarm calls, they will respond by approaching and sometimes by uttering the same call, though individuals quickly habituate to this experimental procedure. When the same jays hear the social-alarm calls of the other species, they do not approach or call. On the other hand, when we played social-alarm calls of *nelsoni* to *sanblasiana*, they responded by approaching and calling. It would therefore seem that apparent difference in voice is not as yet an isolating mechanism in the process of divergence of *nelsoni* and *sanblasiana* from each other. The minor, though consistent, differences in external features probably fall into the same category. The two *sanblasiana* forms are therefore classic examples of geographic races with a potential for reaching

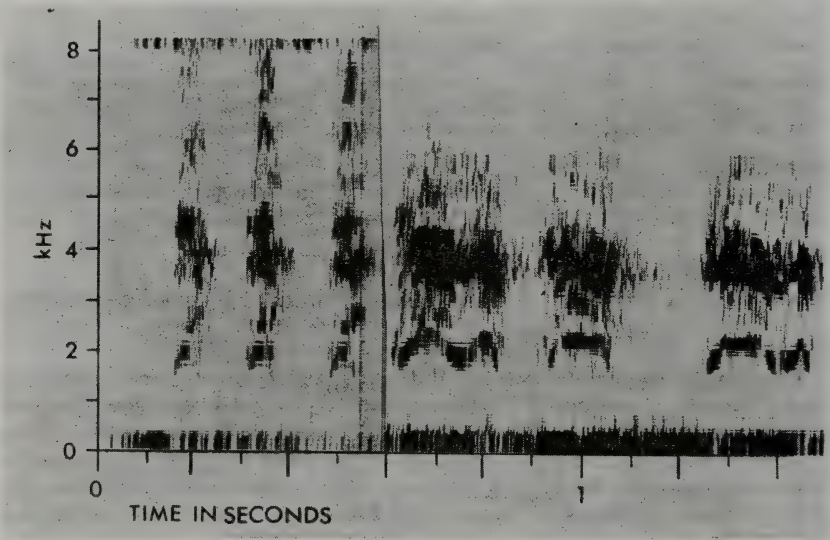

Figure 2. A comparison of social-alarm call structure in (left) *C. s. nelsoni* and (right) *C. s. sanblasiana*. The specimens selected show the extreme differences noted, but sometimes *C. s. sanblasiana* is as staccato as *nelsoni*. No sustained components, as shown for *nelsoni*, have been heard from *sanblasiana*.

specific status, since there is currently no apparent gene-flow between their populations.

We acknowledge the support of our respective institutions, as well as Occidental College (Moore Laboratory of Zoology Endowment Fund) and the American Museum's Frank M. Chapman Fund. The major portion of the work was partially supported by NSF research grants BMS 74–11107 and DE B76–09735. We thank the members of our field party who assisted in this study, Harold Mayfield, Howard S. Gates, Gary L. Grabowski and Jack T. Vollertson.

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Bulletin of Zoological Nomenclature: Opinions

In continuation of *Bull. Brit. Orn. Cl.* 96, 1976: 142, and by permission of the International Trust for Zoological Nomenclature, the following Rulings are quoted as extracts from Opinions published in *Bull. Zool. Nomencl.* affecting birds:

OPINION 1056

(*Bull. Zool. Nomencl.* 33(1), 1976: 16)

Eudyptes atratus Finsch, 1875 ex Hutton MS. (Aves): suppressed under the plenary powers

(1) Under the plenary powers, the specific name *atratus* Finsch, 1875, ex Hutton MS., as published in the binomen *Eudyptes atratus*, is hereby suppressed for the purposes of the Law of Priority but not for those of the Law of Homonymy.

(2) The following specific names are hereby placed on the Official List of Specific Names in Zoology:
(a) *sclateri* Buller, 1888, as published in the binomen *Eudyptes sclateri* (Name Number 2571);
(b) *robustus* Oliver, 1953, as published in the binomen *Eudyptes robustus* (Name Number 2572).

(3) The specific name *atratus* Finsch, 1875, ex Hutton MS., as published in the binomen *Eudyptes atratus*, and as suppressed under the plenary powers in (1) above, is hereby placed on the Official Index of Rejected and Invalid Specific Names in Zoology with the Name Number 1009.

OPINION 1060

(*Bull. Zool. Nomencl.* 33(1), 1976: 27)

Suppression of *Diomedea leptorhyncha* Coues, 1866 (Aves)

(1) Under the plenary powers, the specific name *leptorhyncha* Coues, 1866, as published in the binomen *Diomedea leptorhyncha*, is hereby suppressed for the purposes of the Law of Priority, but not for those of the Law of Homonymy.

(2) The specific name *irrorata* Salvin, 1883, as published in the binomen *Diomedea irrorata*, is hereby placed on the Official List of Specific Names in Zoology with the Name Number 2578.

(3) The specific name *leptorhyncha* Coues, 1866, as published in the binomen *Diomedea leptorhyncha*, and as suppressed under the plenary powers in (1) above, is hereby placed on the Official Index of Rejected and Invalid Specific Names in Zoology with the Name Number 1012.

IN BRIEF

Application of *Halcyon ruficollaris* Holyoak and *Alcyone ruficollaris* Bankier

Holyoak in 1976 (*Bull. Brit. Orn. Cl.* 96: 40) prematurely proposed the new name *Halcyon mangaia* for a species that he had previously named *H. rufiicollaris* in 1974 (*Bull. Brit. Orn. Cl.* 94: 147). His reason for doing so followed an indication that *Halcyon ruficollaris* Holyoak was a junior homonym of *Alcyone ruficollaris* Bankier 1841 (*Ann. & Mag. Nat. Hist.* 6: 394), itself a synonym of *Halcyon sancta* Vigors & Horsfield 1827 (*Trans. Linn. Soc. Lond.* 15: 206).

It appears, however, that *Alcyone ruficollaris* Bankier has been referred incorrectly to *Halcyon sancta* by Mathews (*Systema Avium Australasianarum* (1927) 1: 379) and subsequently by Peters (*Check-list of Birds of the World* (1955) 5: 205). Hartert (*Novit. Zool.* (1930) 36: 99) pointed out that Bankier's name applies instead to *Alcedo azurea*, and designated a northern Australian subspecies (see Schodde & Mason, *Emu* (1976) 76: 161–166). The type specimen from Port Essington in Arnhem Land may unfortunately be lost. Although Mathews (*Ibis* 1931: 50) quickly pointed out that Bankier's name was senior to Gould's *pulchra* in *Alcedo azurea*, he later reverted to listing that name under *Halcyon sancta* in his "*Working List of Australian Birds*" (1956: 73). Nevertheless, both Laubmann in his comprehensive studies of kingfishers (*Anz. Orn. Ges. Bayern* (1942) 22: 192) and Deignan (*Rec. Amer. Aust. Sci. Exped. Arnhem Land*, (1964) 4 (Zool): 391) treated *ruficollaris* Bankier as a subspecies of *Alcedo azurea*, a position with which we concur. Condon, incidentally, (*Checklist of the Birds of Australia*, *pt.* 1, *Non-passerines* —1975) cites Bankier's name in the synonymies of both *Alcedo azurea* (=*Ceyx azureus*) and *Halcyon sancta*.

Because we now interpret *Alcyone ruficollaris* Bankier and *Halcyon ruficollaris* Holyoak as referring to different genera (see ICZN (1964) Art. 59c), *Halcyon ruficollaris* Holyoak stands as the valid name for the Mangaia Kingfisher, and *Halcyon mangaia* Holyoak becomes a junior objective synonym of it.

We are grateful to M. D. Bruce and Dr. G. F. Mees for bringing various publications to our attention.

3 December 1976 R. Schodde and D. T. Holyoak

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BOOKS RECEIVED

Sanders, J. & Berg, K. 1976. *A Guide to Bird-Watching in Denmark.* Pp. 63, numerous maps and illustrations. Photolitho, soft covers. Obtainable from J. Tidy, 9 Freewaters Close, Ickleford, Hitchin, Herts. £1.70 post free. Fack: Stockholm.

Very explicitly and usefully describes and shows on detailed maps how to reach some 40 or more bird localities in west and northeast Denmark for a holiday, and what main species to expect in each, with additional short notes on best dates, expenses, travel, accommodation, etc.

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Edited by

Dr. J. F. MONK

Volume 97 No. 2 June 1977

FORTHCOMING MEETINGS

The attention of Members is drawn to the outstanding programme described below. Mr. Stanley Cramp is Chief Editor of the "Handbook of the Birds of Europe, the Middle East and North Africa (Birds of the Western Palaearctic)". We are particularly pleased that it has been possible to arrange for Professor V. C. Wynne-Edwards, a past President of the B.O.U., to address us and he will speak on a subject of wide interest on which he is the leading authority. Dr. Stephanie Tyler needs no introduction and she will cover observations made before and during the eight months she was held captive in Ethiopia.

Tuesday, 19 July 1977 at 6.30 p.m. for 7 p.m., at the Goat Tavern, 3 Stafford Street, London, W.1. (between Old Bond Street and Albemarle Street, nearest Underground station, Green Park). Mr. Stanley Cramp, O.B.E., B.A., on the *Handbook of the Birds of Europe, the Middle East and North Africa* (*The Birds of the Western Palaearctic*), Vol. 1 of which is due for publication in June 1977. Those wishing to attend should send a cheque for £2·70 a person to the Hon. Secretary with their acceptance on the relevant enclosed slip to arrive by first post on Thursday, 14 July.

Thursday, 15 September 1977 at 6.15 p.m. for 6.45 p.m., at the Senior Common Room, South Side, Imperial College, South Kensington (entrance on the south side of Prince's Gardens, S.W.7., on the E. side of Exhibition Road). Professor V. C. Wynne-Edwards, C.B.E., F.R.S., F.R.S.E., F.R.S.C., on "*Social competition controlling population density in birds*". Those wishing to attend should inform Mrs. Diana Bradley, 53 Osterley Road, Isleworth, Middlesex on the appropriate enclosed slip, with a cheque for £3·75 per person, to arrive by first post on Monday 12 September.

PLEASE NOTE THIS MEETING IS ON A THURSDAY AND THAT ACCEPTANCES MUST BE NOTIFIED TO MRS. DIANA BRADLEY.

Tuesday, 15 November 1977 at 6.30 p.m. for 7 p.m. at the Senior Common Room, South Side, Imperial College, South Kensington, Dr. Stephanie Tyler, PH.D., on the avifauna of Ethiopia and describing especially observations in Tigre and Eritrea.

COMMITTEE

P. Hogg (*Chairman*)	Dr. G. Beven (*Vice-Chairman*)
R. E. F. Peal (*Hon. Secretary*)	M. St.J. Sugg (*Hon. Treasurer*)
Dr. J. F. Monk (*Editor*)	Mrs. J. D. Bradley
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BR MUSEUM NAT. HIST. 23 JUN 1977

Bulletin of the BRITISH ORNITHOLOGISTS' CLUB

Vol. 97 No. 2 Published: 20 June 1977

The seven hundred and fifth Meeting of the Club was held at the British Museum (Natural History), London, S.W.7. at 6 p.m. on Tuesday, 15 March 1977, when Mr. J. M. Forshaw spoke on "The ecology of parrots in Australia and their adaptations to changing environments", with coloured illustrations. He discussed the effects of changes in the environment on a number of species, especially on the Galah *Eolophus roseicapillus* and the Australian Ground Parrot *Pezoporus wallicus*. This meeting was held jointly with the International Council for Bird Preservation (British Section) with Professor J. H. Elgood as Chairman and a buffet supper followed the talk. The attendance was 127 of which 28 were Members of the Club and their guests.

The seven hundred and sixth Meeting of the Club was held at the Senior Common Room, South Side, Imperial College, London, S.W.7. at 6.45 p.m. on Tuesday, 3 May 1977.

Chairman: Professor J. H. Elgood; present 22 members and 10 guests.

Mr. M. W. Woodcock gave the first of three talks on the birds in Asia, making a comparison of the avifauna of the Indian sub-continent with that of S.E. Asia and that of Africa south of the Sahara. Lord Medway then spoke on migrants in Malaysia, dealing especially with information gained from ringing in 1963–1971. He dealt with a number of aspects of migration, including direction, timing and moult. Mr. I. C. Orr concluded with a talk on ornithology in China, dealing especially with the main lines of research there, and showed copies of several recent Chinese ornithological books.

ANNUAL GENERAL MEETING

The eighty-fifth Annual General Meeting of the British Ornithologists' Club was held at Imperial College, London, S.W.7. on Tuesday, 3 May 1977 at 5.45 p.m. with Professor J. H. Elgood, M.A., in the chair. Thirteen members were present.

The Minutes of the eighty-fourth Annual General Meeting (*Bull. Brit. Orn. Cl.* 96: 41) were approved and signed.

The Report of the Committee and Accounts for 1976 were presented and a brief discussion followed, in the course of which the Hon. Treasurer stated that the excess of income over expenditure would very probably be replaced in 1977 by a deficit, because of increased costs of printing. On the Chairman's proposal, they were received and adopted unanimously.

The Editor reported that there had been an ample supply of good papers for the *Bulletin* but that it had been possible to reduce the period between receipt and publication to three months for some shorter contributions.

There being no nominations additional to those of the Committee, the following were declared elected:—

Chairman: Mr. P. Hogg (*vice* Professor J. H. Elgood, who retired on completion of his term of office).

Vice-Chairman: Dr. G. Beven, M.D., B.SC., (*vice* Mr. P. Hogg, who retired on completion of his term of office).

Hon. Treasurer: Mr. M. St.J. Sugg, M.A., (re-elected).

Hon. Secretary: Mr. R. E. F. Peal (re-elected).

Committee: Mr. B. Gray and Mr. V. F. Mann, B.SC., (*vice* Dr. G. Beven and Dr. C. J. O. Harrison).

Mr. P. Hogg proposed and Dr. J. F. Monk seconded a vote of thanks to the Chairman for the kindly and efficient way in which he had presided over the Club during his term of office and this was carried by acclamation.

The Meeting closed at 6.10 p.m.

New Laridae records from Hong Kong

by David Melville

Received 19 October 1976

Although reliable quantitative data are lacking, most observers agree that over the past five years or so there has been a considerable increase in the number of gulls present in Hong Kong during the winter months, particularly in the case of the Black-headed Gull *Larus ridibundus*. Ten years ago, for instance, Herklots (1967) noted this species as common in Deep Bay (over 100 birds on more than one occasion), but less frequently seen in Hong Kong Harbour, though over 100 were present in late January 1960. In the winter of 1975/76 over 3,000 were recorded in Deep Bay and over 10,000 in the Harbour area in January 1977.

Macfarlane & Macdonald (1966) list five species of Laridae for Hong Kong: Black-headed Gull, Herring Gull *Larus argentatus*, Slaty-backed Gull *L. schistisagus*, Glaucous Gull *L. hyperboreus* and Black-tailed Gull *L. crassirostris*; and there is also a record of a Pomarine Skua *Stercorarius pomarinus* by de la Moussaye (1958) in February 1957. Since 1966 four species of gull and one of skua have been recorded for the first time in Hong Kong; Great Black-headed Gull *L. ichthyaetus*, Brown-headed Gull *L. brunnicephalus*, Common Gull *L. canus*, Saunder's Gull *L. saundersi* and Long-tailed Skua *Stercorarius longicaudus*, as well as an additional record of Glaucous Gull.

The number of experienced field observers in Hong Kong has increased slowly over the past decade and observers have paid increasing attention to gulls in the past two or three years. While this may account for the sightings of certain species (e.g. Saunders' Gull), the sightings of the Brown-headed Gull may reflect a genuine range expansion. Unfortunately Cheng (1976) generally gives no details of numerical status and his distributional data are imprecise. On the other hand, the fact that winter 1974/75 was a "good" winter for uncommon gulls cannot be solely attributed to increased observer activity since the level of activity was maintained in the two succeeding winters, when the numbers of Black-tailed Gulls, for example, were lower than in 1974/75, for reasons which are not apparent.

LARUS ICHTHYAETUS *Great Black-headed Gull*

Two records. An adult in partial breeding plumage seen near Lau Fau Shan, Deep Bay on 26 Dec 1974 by R. E. Hale, M. A. Webster and others, was with 9 Caspian Terns *Hydroprogne caspia*, about 260 Black-headed Gulls and 180 Herring Gulls (*L. argentatus vegae* and *L. a. mongolicus*), and was identified by its size (larger than Herring Gull), crown and nape blackish with conspicuous white broken eye ring round back of eye (not front), bill noticeably longer and heavier than Herring Gull with yellow, turning to red, just before the black subterminal band. Although subsequently searched for, the bird was seen only once again *c* 6 km north at Mai Po on 23 Feb 1975 (D. Bradford). A second record was of an adult in full breeding plumage at Pak Nai, Deep Bay on 12 Mar 1977 (M. L. Chalmers).

The species breeds in Inner Mongolia (Lakes Tsinghai and Chanin), migrating through western Sinkiang and Szechuan to winter south to Tenasserim (Cheng 1976, Vaurie 1965). The present records appear to be the most easterly for the species and are interesting in that the birds were adults.

LARUS HYPERBOREUS *Glaucous Gull*

Two earlier records exist for this species: an immature in Hong Kong Harbour February 1908 (Vaughan & Jones 1913) and a party of 7 (adults?) also there on 23 Mar 1936 (Herklots 1936). No details are given for the first record and those for the second are unsatisfactory – particularly in the light of recent records of albinistic, leucistic and hybrid gulls (Hedgren & Larsson 1973, Hume 1975, Mikkola 1970). Both records have been rejected by Webster (1975).

On 15 Mar 1974 I had good close views of a first-year "arctic" gull in flight at the sewer outfall at Kai Tak Airport with about 130 Black-headed Gulls and 45 Herring Gulls. Its overall pale "milky coffee" plumage, typical of first year Glaucous Gulls and Iceland Gulls *Larus glaucoides* stood out from the other sub-adult gulls. Other features were light coloured primaries, secondaries tipped cream/white, legs flesh pink, iris dark brown, bill with basal two-thirds flesh coloured and a clear cut dark brown/black tip, heavier than in the Herring Gulls, than which it was slightly, but noticeably, larger.

Both Glaucous and Glaucous-winged *Larus glaucescens* Gulls are regular winter visitors to Japan (Orn. Soc. Japan 1974), but neither species has been recorded from Korea (Gore & Won 1971). Vaurie (1965) records the Glaucous-winged from "south-eastern China", while Cheng (1976) records it in spring on the Fukien coast (*c* 900 km northeast) and the Glaucous Gull as a migrant and winter visitor in small numbers to Hopei, Kwangsu and Kwangtung. Both species have been recorded in Hawaii (20°N), where the Glaucous-winged is more numerous (Sibley & MacFarlane 1968).

There is a record of *hyperboreus* and *glaucescens* hybridising (Devillers *et al.* 1971) and both hybridise with Herring Gulls (Ingolfsson 1970, Patten 1976). Hybrid gulls often show a complete range of parental characteristics and while there is an increasing amount of information available concerning field identification of adult hybrids, sub-adults pose a more difficult problem. While the Kai Tak bird appeared to me to be a typical first-year Glaucous Gull (with which I am familiar), the possibility of a hybrid can not be entirely ruled out.

LARUS BRUNNICEPHALUS *Brown-headed Gull*

For about half a minute on 21 Nov 1974 I watched from a ferry off Green Island, Hong Kong Harbour, an adult in non-breeding plumage. It was with *c* 70 Black-headed Gulls, than which it was noticeably larger with a conspicuously different wing pattern due to a large black wing tip with a prominent white mirror in the centre, and adjacent to this a band of white running across the light grey wing. The underparts and tail were white and the head also appeared entirely white, though there may have been a dusky patch on the ear coverts since these were not visible on the Black-headed Gulls either.

Following this record there were 11 others during the next 18 months:—five Jan–Feb 1975, one Dec 1975 and five Feb–Mar 1976 (seven adults, four first-year birds). In addition, T. P. Garland had had sightings (undocumented) on 22 Dec 1971: one in Castle Peak Bay, two off Lantau and two in Hong Kong Harbour (all adults).

Vaurie (1965) records the species wintering in Indochina, and Wildash (1968) records it for "southern South Vietnam", while Cheng (1976) shows it wintering in Yunan (*c* 1500 km west) with records of "migrants" in northwest Kangsu, Shansi and Hopei. A single adult was recorded in Perak, Malaya in 1959 (Medway & Nisbet 1967). There were no further records from Malaya until 1964 when at least 200 were recorded, and the species has since been recorded as far south as the Jahore Strait (Medway & Nisbet 1965, Medway & Wells 1970). The adult has such a distinctive wing pattern that it would be difficult to overlook the species and it is likely that the species is expanding its range in southeast Asia.

LARUS CANUS *Common Gull*

Aylmer (1932) records, without details, that "Eastern Common Gulls" were seen in Hong Kong Harbour in January and February 1932; Herklots (1967) does not include the species.

An adult in non-breeding plumage was seen in Hong Kong Harbour on 23 Jan 1968 with a party of Herring and Black-headed Gulls (D. G. Robertson). It was intermediate in size, with a streaked head, grey back and wings with dark tips and white mirrors, and yellow bill and legs. I saw a first-year bird at Kai Tak Airport on 14, 20 and 21 Feb 1975, usually at rest with Black-headed and Herring Gulls, and also sub-adult Black-tailed Gulls, than which it had paler underparts, conspicuous grey scapulars and a less heavy bill.

Vaurie (1965) and Cheng (1976) record the species wintering along the whole southern coast of China.

LARUS SAUNDERSI *Saunders Gull*

Although occurring in March and September ("common in spring") in Kwangtung Province (Cheng 1940), this species was not recorded in Hong Kong until 14 Mar 1969, when two adults in breeding plumage were seen at Mai Po, Deep Bay (Wilson 1970). Since then it has been recorded annually in the Mai Po area between November and March, mainly Feb–Mar (groups of 50+), with single first-year birds at Mai Po on 20 April and Kai Tak Airport on 29 Apr 1975. Most birds were adults in breeding plumage with dark black heads, at a time when most Black-headed Gulls were still in non-breeding plumage. First year birds were first recorded in 1971, and only occasionally since. In the springs of 1975 (40+ birds) and 1976 (53+ birds) there were about equal numbers of adults in breeding and non-breeding plumage, with one or two first-year birds.

Cheng (1976) records the species wintering in the lower parts of the Yangtze River, Fukien, Taiwan, Kwangtung and Hainan, and it occurs as a vagrant in Japan and Korea (Orn. Soc. Japan. 1974, Gore & Won 1971). The breeding range is still unknown (Cheng 1976).

STERCORARIUS LONGICAUDUS *Long-tailed Skua*

An adult in full breeding plumage was seen at Mai Po, Deep Bay on 9 May 1976 flying inland from the sea, passing almost directly overhead. The diagnostic features were well seen:—stout dark-coloured gull-like bill, dark brown cap, upper parts brown, white collar and underparts. The long tail streamers were approximately one third of the total length of the bird (M. A. Webster).

The Pacific race of the Long-tailed Skua breeds in northeastern Siberia and winters in the southern Pacific (Vaurie 1965). Its migrations are virtually unknown (King 1967) and there are no previous records from China (Cheng 1976). It is perhaps noteworthy that the continental anticyclone, normally weakening by mid-April, persisted until mid-May in 1976 before giving way to the warm easterly airstream charactersitic of summer in Southeast China.

Acknowledgements: I would like to thank all those observers whose records have been used in the compilation of this note and M. L. Chalmers, T. P. Garland, M. A. Webster and especially Dr. J. F. Monk for their helpful comments.

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Erythrism in the Fiery-necked Nightjar *Caprimulgus pectoralis*

by C. W. Benson & J. F. R. Colebrook-Robjent

Received 1 December 1976

According to Huxley (1964), polymorphism is absent in the order Caprimulgiformes. Certainly we are unaware of any such instance having been recorded from southern Africa, even though Mackworth-Praed & Grant (1962: 520) state that the young of *Caprimulgus pectoralis fervidus* is "more russet brown, especially on the upperside, than the adult". The observations which follow have been prompted by the collection of two adults of this subspecies near Choma, Zambia, by one of us (J. C-R.), not in the usual phase, which we refer to as "grey", but in a phase which may be termed "rufous", i.e. erythristic.

In the British Museum (Natural History), Tring, there are 21 specimens of *C. p. pectoralis*, all in a grey phase. However, of over 40 apparent adults of *C. p. fervidus*, while the majority are in this phase, there are certain exceptions, which together with J. C-R.'s two specimens are:—

(1) ♀, New Venture Farm, Sibinyati Ridge, near Choma, 7 Oct 1969, coll. J. C-R., from two eggs, oviduct still large and swollen.

(2) ♀, 10 miles north of Choma, 24 Aug 1969, coll. J. C-R., gonads enlarged (one oocyte of diameter 7 mm).

(3) BMNH no. 1953.54.161. ♂, Mwinilunga, Zambia, 29 May (no year), coll. C. M. N. White.

(4) BMNH no. 1931.6.6.32. ♀, Kikore, Kondoa Dist., Tanzania, 25 Sep 1930, coll. C. H. B. Grant.

(5) BMNH no. 1935.10.11.47. ♀, Marang, Mbulu Dist., Tanzania, 20 Sep 1934, coll. R. E. Moreau.

The following references to colour approximate to those in Smithe (1975). In the normal grey phase of *C. p. fervidus*, the crown, tail, throat and chest are "pale neutral gray" (color 86), the mantle "light neutral gray" (color 85). In all the above five specimens, however, the throat and chest are "cinnamon-rufous" (color 40). The crown is also this colour, except for no. 4, with a tendency to grey. The tail is variable, only no. 5 having it almost pure "cinnamon-rufous", the others mixed with "pale neutral gray". On the mantle none are the normal "light neutral gray". All show some "cinnamon-rufous", best marked in no. 1, in which the mantle is almost uniform with the crown, which is only slightly brighter. The contrasting rufous collar on the hindneck, conspicuous in the grey phase, is little apparent in any of these five. Admittedly in the remainder of the material of adult *fervidus*, a few specimens show a slight admixture of rufous, more especially on the tail, but they all belong essentially with the grey phase.

In Tring there are three young *fervidus*, not fully grown (McLachlan & Liversidge (1970) give the adult wing-length as 160–172, tail-length 118–134 mm):—

BMNH no. 1900.2.20.6. Salisbury, Rhodesia, 16 Oct 1898, coll. G. A. K. Marshall. Wing 129, tail 56 mm.

BMNH no. 1910.7.1.240. Chirinda, Rhodesia, 2 Oct 1906, coll. C. F. M. Swynnerton. Wing 95, tail 39 mm.

BMNH no. 1910.7.1.241. Locality and collector as last, 30 Oct 1906. Wing 109, tail 57 mm.

These three specimens, particularly the smallest, are very like the previous five detailed in colour, although there is no certainty that they would have retained any such rufous when adult. In fact the largest already has the crown "pearl gray" (color 81), the tail "pale neutral gray" (color 86). No doubt it was largely on this material that Mackworth-Praed & Grant (1962: 520) based their description of the young. The first five specimens, however, appear to be fully adult, affording examples of genuine erythrism. Nos. 1 and 2 were obviously close to breeding. No. 3, although marked as having testes small, is surely sexed correctly, since it has white extending back from the tips of the outer rectrices for some 50 instead of only 30 mm as in females, and furthermore has hardly any buffy wash on the white wing-spots. So there cannot be any question of erythrism being confined to the female. No. 4 bears a pencilled note in Grant's handwriting "Young bird by colour", although it would appear to be adult, certainly fully grown—wing 165, tail 124 mm.

Certain further young birds, but fully grown, need mention. Two *fervidus* collected by C. J. Andersson in northern South-West Africa (♂, 2 Feb 1859; ♀, 30 Nov 1859) are markedly rufous on the throat and chest, the male also on the mantle (and marked by Grant "Young bird by colour", surely correctly in this case). Presumably these two would have developed into a full grey phase, like four others from the same area. It would seem that not all young exhibit rufous. A male from Sokoke, coastal Kenya, 17 April 1970, collector P. R. Colston, although fully grown, is seemingly very young, the plumage unusually "soft" in appearance. Yet it is in a full grey phase. There is another such specimen of nominate *pectoralis*, merely labelled "S. Africa", collector E. L. Layard.

Of 10 apparent adults of *C. p. nigriscapularis* in Tring, all have some rufous on the tail, and the following have the crown rufous, not grey:—♂, Gomba, Uganda, 24 Sep 1904, F. J. Jackson; ♀, Bugoma Forest, Uganda, 2 Dec 1911, S. A. Neave; ♂, Mambolo, Port Loko, Sierra Leone, 16 Feb 1935, R. R. Glanville. These three also have the throat and chest rufous, as have the following (but crown grey):—♂, Entebbe, Uganda, 11 May 1898, F. J. Jackson; ♀, River Ubangi, Central African Republic, 22 Nov 1905, B. Alexander.

To summarise, there is evidence of erythrism in the adult of *C. p. fervidus* and *C. p. nigriscapularis*, but not in *C. p. pectoralis*. Erythrism may be most frequent (but irregular) in *nigriscapularis*. The young at least of *fervidus* is also most usually rufous.

We are grateful to I. C. J. Galbraith and D. K. Read for the loan of certain critical specimens in the British Museum (Natural History), and C. W. B. to R. Wagstaffe for examining them with him.

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The aberrant eggs of *Turdoides plebejus* in Nigeria and their relation to cooperative breeding and to victimisation by *Clamator* cuckoos

by William Serle

Received 6 November 1976

Except for *Turdoides altirostris* and *T. gymnogenys* the eggs of the 25 species of babbler placed by Peters (1964) in the genus *Turdoides* have been described. They are all immaculate blue, the shade varying within the genus from bluish-white to deep turquoise.

The Brown Babbler *Turdoides plebejus* is unique in that in one part of its range it lays not only blue eggs but also strikingly aberrant eggs coloured bright pink, pale pink, mauve, grey, or blue-grey. *T. plebejus* is distributed in the savanna across the breadth of Africa from Senegal to the Red Sea Coast but so far abnormally coloured eggs have been recorded from localities within a small part only of its northern Nigerian range at Kafanchan (9° 40′ N, 8° 20′ E); Serakin Pawa (10° N, 7° E); Kaduna (10° 30′ N, 7° 28′ E); and Kano (12° N, 8° 30′ E) (Serle 1938, 1940, Shuel 1938). Normal blue eggs also occur in this area.

TABLE 1

Colour, measurements, and shell-weight of the eggs of *Turdoides plebejus*

Set mark *Date* *Clutch*	*Locality*	*Length and breadth (mm), shell-weight and colour*	
37/9 22/v/37 c/4	Kafanchan	24·5 × 17·3, 251 mg. pink 23·9 × 16·8, 253 mg. pink	24·6 × 17·0, 251 mg. pink 25·0 × 20·1, 452 mg. pink (*Clamator*)
37/38 22/vi/37 c/4	Kafanchan	24·0 × 16·6, 254 mg. pink 24·4 × 16·4, 261 m.g. pink	25·5 × 16·7, 271 mg. pink 24·7 × 20·0, 473 mg. pink (*Clamator*)
37/18 2/vi/37 c/3	Kafanchan	25·7 × 17·7, 306 mgblue 25·0 × 18·7, 332 mgblue-grey	26·4 × 18·3, 308 mg. blue-grey
37/37 24/vi/37 c/3	Kafanchan	25·0 × 17·8, 256 mg. pale mauve 25·5 × 18·1, 271 mg. pale mauve	24·5 × 17·9, 260 mg. pale mauve
37/103 26/viii/37 c/3	Kafanchan	23·7 × 17·5, 276 mg. pale mauve 24·5 × 17·8, 280 mg. pale mauve	27·3 × 18·0 300 mg. pink
37/106 30/viii/37 c/2	Kafanchan	24·2 × 17·0, 259 mg. pink 25·0 × 17·2, 272 mg. pink	
38/208 18/vi/38 c/4	Serakin Pawa	24·8 × 17·8, 310 mg. pink 26·4 × 18·7, 312 mg. palest mauve	25·3 × 17·0, 260 mg. pink 24·2 × 17·8, 306 mg. pink
42/5 27/iii/42 c/2	Abeokuta	24·0 × 17·7, 248 mg. blue 23·5 × 17·8, 258 mg. blue	
42/9 18/vi/42 c/2	Abeokuta	26·4 × 18·7, 286 mg. blue 26·0 × 18·8, 289 mg. blue	

Of the 9 Nigerian clutches (Table 1) taken by me the 2 from Abeokuta (7° 10′ N, 3° 15′ E), which lies outside the recorded range of birds laying abnormally-coloured eggs, are blue. The remaining 7 clutches are all abnormally-coloured and of these there is in 2 clutches a very slight, and in 3 clutches a very marked, variation in colour *within the clutch*. The two clutches showing the very slight variation are pink, and in both of them the odd egg is, from its shape, grain, and shell-weight clearly a cuckoo's egg, strong presumptive evidence suggesting that of *Clamator levaillantii* (Harrison 1971). It would seem likely that in this part of Nigeria *T. plebejus* must have laid eggs of pink and allied shades for a very long time because adaptation of some of the eggs of the local parasitising cuckoos has, in colour at least, become nearly perfect.

The 3 clutches showing marked variation in colour are all clearly babbler eggs. The odd egg in each clutch differs from the others quite distinctly in colour and also slightly in shape, measurements, and weight. That one female could lay such remarkably diverse eggs in the same clutch is biologically most improbable and it can be assumed that these clutches are the product of two females.

T. plebejus, which is closely gregarious even at the breeding season, is one of the 4 Ethiopian *Turdoides* cited by Grimes (1976) as cooperative breeders. This series of Nigerian eggs shows that in *T. plebejus* cooperation in breeding is sometimes expressed by two females in a group laying eggs in a common nest. Zahavi (1974) noted similar behaviour occasionally in the Palaearctic *T. squamiceps*. Such behaviour in the gregarious *Turdoides* may be more usual than has been hitherto suspected and sets of eggs merit critical examination. Even in the absence of colour variation, differences in shape, size, and weight within the clutch could be presumptive, or strongly presumptive, evidence of cooperative breeding and of clutch sharing by females.

One egg in set 37/37 and one in set 37/103 was found dented and cracked in the nest. Zahavi found that in large clutches of *T. squamiceps* which were the product of more than one female some eggs were cracked and he believed that this was "the result of conflict between two or more females which laid in that nest".

Lastly, in *T. plebejus* the sexes are alike and the roles played by males and females respectively in incubation and tending the young are not known; so it is worth mentioning that the 7 incubating birds collected by me at the nest were all females.

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Hole Nesting by Bat Falcon *Falco rufigularis* in Belize

by S. G. Madge

Received 15 December 1976

During a visit to Belize, Central America, in April 1976, I watched Bat Falcons *Falco rufigularis* (=*albigularis*) on a number of occasions. By day they are often easy to observe as they are then rather sedentary and tend to perch high up in dead tress. I also saw them hunting actively at dusk. On 23 April I spent the day in pine-ridge country, a habitat where *Pinus carribaeus* grows in varying densities, interspersed with open grassy areas, somewhat resembling heathland in appearance. While watching a Vermilion Flycatcher *Pyrocephalus rubinus* feeding young in a nest in one of the pines (this was a small bowl-shaped nest, *c.* 8 m up, resting on the fork of a small branch which it matched precisely in colour), my attention was drawn by the "pyoo-pyoo-pyoo" call of a falcon (quite similar to the alarm call of a Hobby *Falco subbuteo*) to a nearby tree in which two Bat Falcons were perched on a branch *c.* 10 m up. These were obviously a pair and the female, which was somewhat larger (the disparity in size is quite marked in photographs which I took), was feeding on a small item of vertebrate prey, probably a small mammal as there were no feathers drifting down, while her mate perched on the same branch less than half a metre along.

The female paused in her feeding occasionally and peered down at me, calling angrily. When she had finished feeding she flew to a dead tree *c.* 50 m away and, as I was watching her through my binoculars, she flew with rapid wing beats straight towards me. When near she closed her wings to stoop at me with great speed, passing just above my head, and then swung away to return to the dead tree. She repeated this manoeuvre several times until I moved away from the tree where she had fed, but resumed her attacks when I returned to it. I was unable to find any fledlings but noticed a hole *c.* 6 m up in the tree by which I had been standing when the bird attacked so persistently. When I pretended to climb the tree both birds flew at me in an attempt to drive me off. I have no doubt that the hollow in the tree trunk contained one or more young Bat Falcons. The following day Mr. M. I. Meadows, with whom I was staying, watched a Bat Falcon in another part of the forest enter a hole *c.* 16 m up in a large tree where it seems very probable it was nesting.

Brown & Amadon (1968) do not specify any typical nest sites for this species. Their statement that "nests in trees may be as high as 100 ft. or more" gives no indication as to whether such nests are habitually in holes or in the open, or even if they are built by the birds themselves. Pennard & Pennard (1908) state that "the nest of thin branches and twigs is built in high or low trees, but equally well in hollow trees", but their information may have been only that from Indian hunters, and confusion with *F. deiroleus* is possible. Beebe (1949) describes a nest in an inset hollow shelf, overgrown at the edges with bark, where a limb had broken off a giant tree in Venezuela, and Brown & Amadon mention another nest on a crossbar of a crane 20 ft. high in a sugar factory in Guyana. No details of this site are given but it suggests nesting in an exposed rather than an enclosed situation. Haverschmidt (1968) states categorically that the species "nests in large holes (mostly old holes of the large woodpeckers of the genus *Campephilus*) in trees". Ridgely (1976) is equally emphatic that in Panama they "nest in tree holes".

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Natterer's specimens of *Sterna cantiaca* from Brazil

by K. H. Voous

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At the request of Dr. H. Sick (Museu Nacional, Rio de Janeiro, Brazil), Dr. H. Schifter kindly sent me for examination eight specimens of terns collected in Brazil by the well-known Austrian collector Johann Natterer in the years 1817–1835. These birds, preserved in the Natural History Museum of Vienna, Austria, were recorded by Von Pelzeln (1871: 324) as *Sterna cantiaca* (=*S. sandvicensis acuflavida*). The point at issue was whether these birds were North American Sandwich ("Cabot's") Terns *S. s. acuflavida* collected while present along the Brazilian coast during their non-breeding season, or rather have to be assigned to the indigenous, but still poorly known Cayenne Tern *S. eurygnatha*.

S. s. acuflavida has a long black bill with small ivory-yellow tip, while in *S. eurygnatha* the colour of the bill is yellow. Junge & Voous (1955), and later Ansingh *et al.* (1960) and Voous (1968), have shown, however, that in a not inconsiderable proportion of northern South American representatives of *S. eurygnatha* (at present known to breed on various South Caribbean islands from Aruba in the west to Trinidad in the east) the bill has black patches of variable extent and form, and that some even have a bill coloration which is indistinguishable from that of *S. s. acuflavida*. Since no other characters distinguish *eurygnatha* from *acuflavida*, they concluded that *acuflavida* and *eurygnatha* should be considered as conspecific and that the "Cayenne Tern" be known as *S. sandvicensis eurygnatha*.

Von Pelzeln (1871: 324–325) lists specimens of "*Sterna cantiaca*" from the following localities of the Brazilian coast (translated): "Marambaya on a sandbank March, Sapitiba off the Ilha do Pescador March, beach of Praia do Sai from a flock April, Rio do Boraxudo December, Rio de Janeiro solitary shot in the bay August, Cajutuba 1835, 12 specimens". Of these apparently no more than the following eight specimens are still available in the Vienna Museum:—

> Marambaya near Rio de Janeiro (reg. No 11, ♂, 17 March 1818); Rio de Janeiro (reg. No 12, ♂, 6 Aug. 1818); Rio de Boraxudo, Prov. Parana (reg. No 13, ♂, Dec. 1820); Cajutuba near Para, North Brazil (reg. Nos 8, 9, 2 ♂♂; reg. Nos 7, 10, 14, 3 ♀♀, Feb.–April 1835).

The coloration of the bill in these specimens varies, apparently irrespective of age and sex, between black with small yellow tip and some yellow at the gape of the lower mandible (No 7), through various stages of black with irregular yellow patches (Nos 10, 9, 14) and yellow with black patches (Nos 15, 11, 8), to predominantly yellow (No 12). Whereas No 7 could easily pass for a specimen of *S. s. acuflavida*, No 12 is a fine specimen of *S. s. eurygnatha*. The remaining skins fall well within the limits of colour types found in breeding colonies in the Netherlands Antilles, viz. *c.* 62% yellow, 25% intermediate, 13% black (Voous 1963) and in birds collected along the Uruguayan coast (Escalante 1970).

State of wear of feathers, moult of crest and primaries, and remains of juvenile plumage (at least in Nos 7, 8 and 14) conform with a breeding season in the northern spring, as was found in Brazilian populations (Rio de Janeiro—Sick & Leao 1965) and in the South Caribbean (Voous 1963). They differ in this respect from the enigmatic Argentina birds, of which so far three nesting sites have been recorded in the southern summer on the Atlantic coast between 43° and 46° 55′ S. (see Escalante 1973). Von Pelzeln's specimens from Cajutuba, North Brazil, three of which show traces of immature plumages, could be either Brazilian breeding birds (not necessarily from this locality) or migrants from the Caribbean; they have the larger amount of black on the bills that is characteristic of the Caribbean populations at least in some years.

Measurements (mm) of Natterer's specimens agree with those from tropical South America, rather than with those from Argentina (Table 1).

TABLE 1

Measurements of *Sterna sandvicensis*

	Natterer's specimens	*Northern South America**	*Argentina**
Wing	♂ 259, 266, 273 278, 295 ♀ 272, 282, 283	17 ♂♀ 289·8 (283–303)	10 ♂♀ 314·1 (304–321)
Bill†	♂ *c* 50, *c* 53, 53 54·5 ♀ *c* 50, 51·5, 52	23 ♂♀ 54·0 (49–58)	10 ♂♀ 58·7 (53·5–62)

* Voous (1968: 185) † Exposed culmen

To summarize: examination of the specimens has revealed, as expected by Sick (*in litt.*):

1. Natterer's specimens do not refer to the northern migrant race *S. sandvicensis acuflavida*, but to the indigenous tropical South American race *eurygnatha*; they are not a mixed assemblage of tropical and temperate South American origin (cf. Escalante 1973).
2. Argentina specimens of *S. sandvicensis* stand apart in measurements and seasonality.
3. The occurrence of *S. sandvicensis acuflavida*, "Cabot's Tern", as a wintering bird from North America on the Brazilian coast rests on the sole evidence of a bird ringed on the Mississippi coast and recovered at Rio Grande do Norte in northeastern Brazil (Sick *in litt.*). Sight records of Cabot's Terns (e.g. Mitchell 1957: 81) have every chance of being erroneous.

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The eggs of the Teita Falcon *Falco fasciinucha*

by J. F. R. Colebrook-Robjent

Received 22 January 1977

This note describes for the first time the eggs of *Falco fasciinucha*, an apparently rare and local falcon of East and Central Africa, with a range at least as discontinuous as that of the extensive precipices which constitute its habitat. A nest site in the Songwe Gorge overlooking the Zambezi River some 5 km below the Victoria Falls in Zambia was described by Holliday (1965). The basalt cliffs here are *c.* 135 m high and the nest site was 42 km below the top.

On 27 September 1970, in the same general area, mating was observed at 0630 hrs. The male Teita Falcon flew from the rock face and alighted straight on the back of the female, which was perched on top of a small tree on the cliff side. Copulation lasted about 20 seconds, after which the male flew off and out of sight (see Holliday for a similar description). The female remained perched for a minute or two before flying 60 m directly to a round, wind-eroded hole in the sheer cliff and entering. At 1400 hrs on 4 October, Mrs. S. Scola saw one of the falcons fly into this same nest hole and relieve the sitting bird, which immediately flew out.

On 19 September 1971, a smaller wind-hole 2·5 m above the previous year's site was reached by means of an electron ladder and alpine rope. Although prior to this date R. J. Dowsett had repeatedly seen a pair at this upper hole, the nest scrape was empty and still no eggs had been laid when I next inspected it on 21 October. However, T. O. Osborne was able to recover bleached and broken shells of at least two eggs from the 1970 nest, one whole enough to give an approximate measurement of 44–45 × 34·8 mm.

On 7 October 1972, one of the falcons appeared briefly on the lip of the 1971 hole as a Brown Snake Eagle *Circaetus cinereus* flew past, but soon re-entered and disappeared from view. I inspected this hole on 10 October when a tight-sitting Teita Falcon flushed out almost in my face revealing four eggs. The eggs, all separated, lay in a depression on small particles of basalt in the furthest darkened corner of the 30 cm deep wind-hole. The hole was 22 cm high and 45 cm wide. Two small feathers of the falcon were with the eggs.

Eggs. The 4 eggs differ somewhat in shape, one being blunt oval, two oval and one rather long oval. The ground colour is pale yellowish-buff. The markings are in the form of small spots or blotches, in two eggs rather evenly distributed over the whole surface. The spots are yellowish-brown and most are 2–4 mm in size. One is rather different in that there is a wash on the top third of the same colour as the spots. Another egg has a few small streaks of darker brown, and even fewer pale ashy shell-marks are just discernible. The four eggs measure 45·2 × 34·5, 42·7 × 34·1, 42·5 × 34·5 and 41·9 × 34·7 mm. At another nest found by R. J. Dowsett in the Fifth Zambezi Gorge in 1975, with the aid of a powerful telescope, we were able to see eggs we knew to be freshly laid. These eggs were blotched with rather pale yellowish-brick. Like those of all other falcons, the eggs of this species show yellowish internally when held against the light.

Nest. None: a mere scrape in loose rock particles. The statement in McLachlan & Liversidge (1970) that the nest is " . . . constructed of twigs" is erroneous. The Songwe and Fourth Gorge nest sites described by Holliday, and Dowsett's in the Fifth Gorge, suggest that the Teita Falcon selects well sheltered sites in the form of wind-holes or deep horizontal cracks, the eggs being laid in shadow.

Behaviour. The adults were aggressive while I was at the nest. After the incubating bird had left the eggs, it was joined by its mate. Then both birds flew round and repeatedly swooped to within 3 m of me before shearing off with tails spread, "kekking" loudly. Later, the pair flew up level with the top of the precipice and glided in circles above the rope party engaged in lowering me down the cliff, before folding wings close to the body and plunging vertically downwards to the nest area. This performance is essentially similar to the aggressive behaviour of the Peregrine *F. peregrinus*, which also breeds in the Zambezi River Gorges. The Teita Falcon is included by Brown & Amadon (1968) in the Peregrine Group and Prof. T. J. Cade (*in* Hickey 1969) suggests that its closest relative is the Barbary Falcon *F. pelegrinoides*. The

Teita Falcon and Barbary Falcon are known to share some characteristics, e.g. rufous nuchal patch; it should now be noted that both falcons lay paler eggs on average than do the northern races of the Peregrine.

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The distribution and habitat of *Telacanthura ussheri benguellensis*

by C. W. Benson & J. M. Winterbottom

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In view of the forthcoming Atlas of speciation in African non-passerine birds under the editorship of Dr. D. W. Snow, attention should be drawn to certain records of the Mottled Spinetail *Telacanthura ussheri*, from two particular areas. Those from the first are rejected, but those from the second are valid, and extend the known range of *T. u. benguellensis* (*cf.* Brooke 1971b).

Area 1. R. J. Dowsett (pers. comm. to C. W. B.) points out that records of *T. u. benguellensis* in Benson *et al.* (1971) from the Kabompo and Balovale Districts, supported by a specimen from Kabulamena, are anomalous, the only others being from the Middle Zambezi Valley between Chirundu and Feira. The ecological contrast between these two areas is considerable, moist Brachystegia woodland (Miombo) predominating in the former, dry Mopane woodland interspersed with scattered baobab trees *Adansonia digitata* in the latter. Brooke (1966: 5) records a specimen of the Bat-like Spinetail *Neafrapus boehmi* (as *Chaetura boehmi*), in the British Museum (Natural History), from Kabulamena, on the authority of C. W. B., who has re-examined it and confirms that it belongs to that species. It bears registered number 1945.18.10, and is dated 27 June 1940, collector J. M. W., who is sure that he never collected any other specimen of a spinetail at this locality. C. W. B. could find no Zambian specimen of *T. ussheri* in the British Museum, exclusive of the one collected by Alexander (1900: 93), at Zumbo, Mozambique, on the south side of the Zambezi River, opposite Feira.

The original published source of records of *T. ussheri* from the Kabompo and Balovale Districts is Winterbottom (1942: 360), in which the date of the Kabulamena specimen is given incidentally as 28 June (not 27 June as above). It is clear that there was a misidentification of a specimen of *N. boehmi.* Evidently this arose from a letter dated 4 February 1941 from Dr. A. Roberts to J. M. W. (Roberts 1943). He could not have had a specimen of *T. ussheri* for comparison. The species is not illustrated in Roberts (1940), and in the text there is a comment on *T. ussheri* (as *T. stictilaema*) "Similar in colour to *Notafrapus sheppardi*, though the lores are said to be white, but the tail considerably longer" (*N. sheppardi* is treated by Brooke, 1966: 6, as a race of *Neafrapus boehmi*). By contrast with *T. ussheri*, *N. boehmi* is well known in northern Zambia. In particular, White (1945: 343) saw it in large numbers in the Balovale District, but only quotes Winterbottom's records of *T. ussheri* from the same general area, although he (1944: 145) had seen *ussheri* earlier, at the Kafue/Zambezi confluence and Feira.

Area 2. Benson & Benson (1975: 10) give sight-records by L. Holloway, Mrs. D. B. Hanmer and E. F. J. Garcia of *T. ussheri* from around baobabs in the Mwabvi and Lengwe areas, lower Shire Valley, the first records of any kind of the species from Malawi. While investigating the problem of the Kabulamena specimen, C. W. B. found a recently incorporated specimen of *ussheri*, from the large collections made by Col. R. Meinertzhagen, bequeathed on his death to the British Museum (Natural History). It bears registered number 1965.M.5448, and is labelled "♂, Port Herald, Nyasaland, 13.9.08". The locality can now read "Nsanje, Malawi". The specimen was collected by Meinertzhagen during a two-month collecting trip to southern Malawi in Sept./Nov. 1908, of which no published account appears to exist. C. W. B. and D. Goodwin found that it agreed in colour with *T. u. benguellensis* rather than *T. u. stictilaema*. Moreover the wing-length was as much as 149 mm (*cf.* Brooke 1971b).

C. W. B. showed the foregoing to R. K. Brooke, who has prompted the following comments, for which C. W. B. is nevertheless solely responsible. It is evident from Brooke (1971a, b) that *T. ussheri* as a whole is catholic in habitat, occurring both in areas of evergreen forest and dry deciduous woodland, and nesting and roosting in hollows in trees, even adapting to buildings. However, in the extreme south of its range *T. u. benguellensis* may be confined to dry deciduous woodland, finding nesting and roosting sites only in baobabs. The gap in its range between southwestern Angola (at Blaasbalkfontein, Benguela, at *c.* 13° S, 14° E, and Montipa=Mantipa, Mocamedes, 14° 39′ S, 13° 14′ E) and, from area 1 above, the Zambezi Valley at *c.* 29° E, may be more apparent than real. The species can escape notice very easily. There could be a rather tenuous connection south of the moist woodland belt, through southern Angola and northern Botswana, in the drier vegetation types 20 and 22, in which baobabs are present (Keay 1959). As suggested by M. P. Stuart Irwin (pers. comm.), such a connection could be analogous to the case of the more easily observed Long-tailed Starling *Lamprotornis mevesii* (*cf.* Hall & Moreau 1970: 358). The connection could have been better developed in a drier epoch. Thus although Livingstone (1975: 273) suggests that there was a major change in climate in tropical Africa some 10,000 years ago, to more humid conditions, *inter alia* he also points out that there was a gradual drying out between 5,000 and 3,000 years ago, to conditions somewhat more arid than to-day. Alternatively, a specialisation of *benguellensis* to baobabs may be relatively recent, and its occurrence at Cassoalla and Vila Salazar in the Cuanza Norte area of northern Angola (Brooke 1971b, Traylor 1963) at *c.* 9° S, 14° 30′ E might suggest that in this area it can still survive in a moister climate in which baobabs would be absent. From Keay (1959), Cuanza Norte lies in an isolated area of moist forest (vegetation type 7), although admittedly adjacent to type 20, already cited as holding baobabs. It is interesting that although Brooke (1971a) gives various records of the species breeding in buildings, there is no evidence of this for *benguellensis*. Although, buildings apart, he only mentions specifically use of hollows in baobabs for the species as a whole, other kinds of trees must be used in areas where baobabs are absent. Thus Moreau & Moreau (1937: 169) record *stictilaema* entering holes in a dead *Ocotea* tree at Amani in the humid East Usambara Mts.

Brooke (pers. comm.) remarks that few species of swifts have their distribution governed by that of vegetation, but rather by the availability of nesting sites and lack of a competitor with the same wing loading exploiting the food supply of the same airspace in the same way. The African Palm Swift *Cypsiurus parvus* is well known to be largely dependent on palms for breeding, and *T. u. benguellensis* may provide an analogy in its dependence on baobabs.

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Juvenile plumages of *Cuculus canorus* and *Cuculus gularis* in Africa

by Robert B. Payne

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Juveniles of the migrant Palaearctic Cuckoo *Cuculus canorus* and the African Cuckoo *C. gularis* occur together much of the year in the African region, *canorus* as a wintering migrant and *gularis* as a resident (perhaps with intra-African migrations).

In discussing their distinguishing characters, I follow Chapin (1939) in regarding *Cuculus gularis* as specifically distinct from *Cuculus canorus*, a decision compatible with the consistent and conspicuous difference in song of the two forms throughout the range of each. The abrupt discontinuity in behaviour (Chappuis 1974) coincides with the abrupt discontinuity in bill colour and plumage of the adults as well as with a discontinuity in juvenile plumage, indicating that the two allopatric forms are probably distinct at the species level. Adults are readily distinguished by the yellow bill in *gularis*, black in *canorus*, and by the white barred outer rectrices of *gularis*, compared with those of *canorus*, which are unbarred or barred with rufous-brown. The juvenile (post-fledging, pre-winter moult) plumage is less well known. Juvenile *gularis* have black bills, and the barring of the rectrices is distinctive only in the adult plumage. Chapin (1939) and Friedmann (1948) state that juvenile *gularis* is more grey, and Mackworth-Praed & Grant (1970) add that *gularis* is distinctive in its white barring above and in lacking bars on the outer webs of the primaries. However, I do not know of a description that discusses how the juveniles they describe were originally identified as to age or species. As the western Palaearctic cuckoos winter in Africa, both kinds of birds may occur in juvenile plumage in the same range for part of the year.

Juvenile *C. gularis* in museum collections of cuckoos taken in Africa were examined and identified by three criteria (see Table 1). First, four birds (1–4) are known to be local *gularis* as they were taken in a nest or with the juvenile plumage not yet fully developed. In one (No. 4) the plumage was nearly fully grown and the bill colour was already yellowish, with the lower

TABLE 1

Specimens of juvenile *Cuculus gularis*

	Cat. No.	*Locality*	*Date*	*Sex*	*Wing*	*Tail*	*Bill Width*[2]	*Notes*
1.	JC-R 2374	Ringwood, Choma, Zambia	31/10/75	♀	130[1]	82[1]	—	nestling
2.	AMNH 624941	Eil Huma, Somalia	16/4/20	♂	163[1]	98[1]	7·4	local bird
3.	BM(NH) 1907 12.22.60	Salisbury, Rhodesia	13/11/98	–	171[1]	146[1]	7·8	local bird
4.	AMNH 704577	Okahandja, SW Africa	30/12/52	♂	185[1]	168	7·5	local bird
5.	NMR 33531	Mumbwa district, Zambia	17/12/57	♀	212	178	8·1	moulting
6.	NMR 29817	Kalulushi, Zambia	1/12/56	–	216	178	8·2	moulting
7.	FMNH 268847	Kalabo, Barotseland, Zambia	22/11/61	♀	212	167	8·0	mostly adult plumage
8.	NMR 49286	Kaluwa Hill, Zambia	1/1/59	♂	200	176	8·3	
9.	NMR 14082	Nyamandhlovu, Rhodesia	1/9/54	♂	214	172	6·8[3]	worn, moulting
10.	FMNH 269650	Sangmelima, Cameroon	10/5/33	♂	214	158	8·4	moulting
11.	FMNH 281586	M'Bengue Bougou, Ivory Coast	27/3/67	♀	208	168	8·3	moulting, mostly adult plumage, "OE"
12.	AMNH 625039	Cambo Coquenje, Bihe, Angola	28/10/04	♂	197	164	7·8	
13.	AMNH 625041	Pedrira, Bihe, Angola	13/11/04	♂	212	170	8·5	
14.	AMNH 625044	Chissamba, Bihe, Angola	19/11/04	♀	210	168	8·1	
15.	AMNH 625031	Humpata, Angola	28/12/01	♂?	224	168	8·1	
16.	NMR 11427	Chilanga, Zambia	19/12/50	♂	210	179	8·2	
17.	ANSP 166404	Lundazi, Zambia	"4/6/46"	♀	213	–	–	
18.	BM(NH) 1906 12.11.14	Entebbe, Uganda	—	–	198	167	8·3	
19.	BM(NH) 1904. 10.23.87	Mulema, Uganda	—	♀	200	172	7·7	
20.	CM 118405	Nyamezon, Bafia, Cameroon	16/4/34	♀	206	168	–	
21.	BM(NH) 1889 6.29.125	"Gambia"	—	♂	221	177	8·4	

[1] Feathers still growing

[2] Distance (mm) across tomia below mid-point of nostrils

[3] Bill damaged by shot

For abbreviations used in the Catalogue numbers column see Acknowledgements mandible blackish only at the tip. Second, several cuckoos (5–7, 10, 11) had begun the postjuvenile moult and had grown the definitive adult rectrices and the basal half of the lower mandible had turned yellow. In this case the adult characters were sufficient to make identification of the remaining juvenile plumage characters possible. Third, some specimens (8, 9, 12–21) had the bill half yellow but had not yet begun to moult from juvenile into adult plumage or had only just begun to moult. These birds were sometimes a problem to identify as the bill colour of the bird when collected was not indicated on the label and the bill colour had probably changed in museum storage. In these cases, for identification the date of collection was checked against known dates of local breeding *gularis* and dates of visiting *canorus*. In southern Africa the breeding season of *gularis* is October–December: so full grown, 2–3 month old *gularis* that had not yet started moult might occur in November and December, a time when similar aged Palaearctic birds also would be present in juvenile plumage. Some specimens also might have been migrants from other areas of Africa since both cuckoos are seasonal in occurrence in some parts of Africa (Friedmann 1948).

Juvenile *C. canorus* were examined from Europe, Russia, China, Japan, and India as well as from Africa. Birds in the breeding range of *canorus* in Europe were the main known-identity birds of the study. Moulting African birds with some definitive adult plumage (particularly birds with rufous bars, the "hepatic" phase, which occurs in Palaearctic and Indian birds but not in African birds) and other identifiable dark-billed African juveniles were also used as known-identity *canorus*. Measurements of Indian birds are excluded from the data cited below, but colours are included.

Plumage characters which varied between known juvenile *gularis* and known juvenile *canorus* were the general plumage colour, particularly brown or rufous *vs.* whitish or grey in the primaries and wing coverts; the barring on the tip of the crown feathers; and the size and shape of white spots in the tail.

The general plumage colour of all *gularis* was grey and all *canorus* was rufous or brown. No *gularis* was browner than the least brown *canorus*. *C. gularis* were all "brownish grey" or "grey" with Methuen (Kornerup & Wanscher 1967) colours 5C1, 5C2 (nearly all birds), or 5C3 (No. 12); whereas *C. canorus* ranged from "reddish-blond" or "brownish orange" (colours 5C4–6) to "reddish golden" or "brownish orange" (colours 6C7–8). The pale spots and bars on the remiges and wing coverts in all the juvenile *gularis* were brownish grey or grey and not brownish, though two *gularis* were stained with brownish orange on the upperparts. Brown or rufous colour is apparent in juvenile European *canorus*, and also in populations identified as *C. c. subtelephonus* and *C. c. telephonus* in the trans-Caspian region, India, China and Japan, and one should be able to distinguish *C. canorus* from *C. gularis* in Africa from all these population areas, should they migrate to Africa.

The drak crown feathers are differingly tipped with white in the two species. Both often have 2mm-wide basal areas of white on the feathers (visible if the overlying feathers are lifted) and both have some entirely white feathers, especially on the nape. In the dark crown feathers, width of the whitish tip in *gularis* ranged from 1·0 to 1·8 mm (mean of 15 = 1·20±0·23 mm SD). Two young *gularis* (9, 10, identified by lack of brown in the plumage and by the yellow of the bill) not included in these figures, lacked any whitish tips; the plumage was quite worn, and they were both moulting. In *canorus*, on the other hand, the tip is only narrowly edged with white or buff, with a range of 0 to 0·8 mm (mean of 43 = 0·44±0·61 mm). In some young *canorus* there is no pale tip as a result of wear. Four *canorus* had a tip wider than 0·6 mm, one each from Britain, China, Zambia (NMR 46371—see Acknowledgements), and Sudan (ANSP 104223). The last two were identified as *canorus* by their fresh or slightly-worn brownish plumage; the dates are compatible with migrant *canorus* (December and September).

The primaries. White or buffy bars occur on the outer edges of the primaries in all juvenile *canorus*, but white notches or bars also occur in 9 of the 21 juvenile *gularis*. The inner webs are barred in both cuckoos. The tips of the primaries are broadly edged with white in *gularis* but also in some *canorus*. The scapulars and back feathers of *gularis* are often broadly edged with white, as Mackworth-Praed & Grant (1970) note, but some *canorus* are as broadly edged with white.

The spots on the tail are broader in *gularis*. The third spot (from the tip) of the central rectrix measures 0·8 mm in one *gularis* (No. 19) but in all the others (including the Uganda bird) measures 2·0–3·0 mm (mean of 19 = 2·34±0·54 mm) measured at right angles to the edge of the rachis. In *canorus* the spot measures 0·5 to 2·2 mm (mean of 47 = 1·35±0·56 mm). Of the 47 measured, 8 *canorus* had a spot of 2·0 mm or wider. The widest, FMNH 262843, taken in Barotseland, Zambia, on 28 October 1961, was listed by Traylor (1965) as *gularis*, but he noted that it "may be nominate *canorus*, for the yellow on the bill is less extensive than in the adult". The yellow in fact is restricted to the gonys, the lateral rami of the lower mandible are blackish, the plumage quite dark above with many brownish bars. I regard the bird as a *canorus* with a slightly unusual bill. Most other *canorus* with wide tail spots were taken in Europe. The most rufous specimens tend to have the narrowest white tail spots.

The barring pattern below is not consistently different in the two species, though most *gularis* have a paler throat than most *canorus*, in which the throat is often darker than the belly. Measurements of representative black bars on the throat of 17 *gularis* average 1·17±0·36 mm and black bars on the belly average 1·23±0·61 mm. Comparable figures for 47 *canorus* are 1·69±0·76 mm and 1·47±0·47 mm. The measurements indicate considerable overlap with no significant difference between the two cuckoos. Comparable measurements of the white bars separating the black bars likewise overlap and are not included as they vary with the preparation of the museum skins. No consistent difference is apparent in barring of the under tail coverts.

Other measurements taken showed no consistent or significant differences between *gularis* and *canorus*, including wing length, tail length, and bill length from nostril and from base of the culmen.

Bill width. Adult *gularis* tend to have broader bills than *canorus* (Benson *et al.* 1971, M. P. S. Irwin). Bill widths were determined for juveniles by measuring with calipers across the width of the tomia at a level directly below the midpoint of the nostrils. Including only those birds in which the remiges and rectrices were fully grown, bill width in 19 *gularis* averaged 8·04±0·388 mm, range 7·4–8·4 mm; and in 33 *canorus* averaged 7·25±0·363 mm, range 6·5–7·8 mm. In one *gularis* (No. 9, excluded from above) from Rhodesia, the bill width was only 6·8 mm, but was damaged by shot. Bill widths of juvenile *gularis* are nearly all larger than bill widths of juvenile *canorus*.

A few specimens in addition to those mentioned above presented problems in identification or deserve further comment. (1). NMR 14082 (No. 9) has the smallest tail spots, has traces of primary bars, and has the narrowest bill of any bird identified as *gularis*, but the bill is damaged by shot and the measurement may be unreliable. Crown bars are lacking due to wear. The grey plumage is worn and moult is in progress, and the date ("1–9" = 1 September) seems too early for a migrant Palaearctic bird. The date also seems wrong for a local southern African bird as *gularis* is found only from September to March–May (Benson *et al.* 1971); perhaps the specimen is a migrant from a breeding population in Africa well north of Rhodesia, as suggested to me by M. P. S. Irwin. The collector described the bill as "slate above, orange below, fading to slate at tip," indicating that the bird is *gularis*. (2). BM(NH) 1904.10.23.87 (No. 20) is washed with rufous on the throat and upper breast and has white barring on the outer webs of the primaries, though less than in any *canorus* in the sample. The white spots of the central rectrices are small (0·8 mm). Characters suggesting *gularis* are the lack of brown elsewhere in the plumage, broad white tips to dark crown feathers (terminal crown bars), and the yellow basal half of the bill. Date (early May) does not rule out *canorus*. I regard it as *gularis*. (3). UMMZ 216722 from Transvaal has all the characteristics described above of *canorus*; the identification was queried by Moreau (1972: 184) and the query led to the present note. (4). NMNH 335008, Lake Albert, Butiaba, Uganda, 13 November 1900, listed (as 1901) by Jackson (1938: 485) as *gularis*, is heavily barred with rufous and dark brown, has the head plumage like that of Palaearctic birds, and has a black bill. I regard it as *canorus*. (5). BM(NH) 1935. 7.9.143 and 144, both ♂♂ collected at Torit, Sudan, on 13 November 1935, are in worn plumage with some tan (Methuen 5C4) in the barring of the primaries. F. O. Cave noted the bill colour of the first bird as "black, but greenish below, and yellow at the gape", and the second "black, lower mandible yellowish", though it looks mostly dark now. The first has a bill width of 7·5 mm and the whitish tips of the crown feathers are nearly 0·6 mm, but these may have been abraded. The second has a bill width of 7·3 mm and only a trace of crown bars. The worn state of plumage seems compatible with that expected of a Palaearctic migrant by mid-November, and I tentatively regard the birds as *canorus*. (6). FMNH 193430 is a *canorus* taken in Kenya on 6 June 1922, a month when *canorus* normally would have been in the Palaearctic. The bird is a ♀ with several retained, brown-barred juvenile remiges, very worn, but otherwise is in adult plumage typical of *canorus*. No feathers are actively growing. The arrested state of moult suggests that the bird was in poor condition and unable to complete the moult or to migrate. No other juvenile *canorus* was noted from Africa after early May. (7). BM(NH) 1915.12.24.465 is a juvenile *C. canorus* taken on 26 July 1911 at Khartoum. The plumage is fresh. The date suggests an unusually early migration from the Palaearctic breeding grounds. Cuckoos in Britain breed as early as 11 May (Chance 1940) and with 12 days for incubation, 20 days to fledging and as much as another month to independence the cuckoo would still have had time to migrate to Sudan; but no other juvenile *canorus* was noted from Africa before September.

In summary, juvenile *C. gularis* differ consistently or nearly so from juvenile *C. canorus* in plumage colour (browns lacking in *gularis*), in bill width and in having the dark crown feathers broadly tipped with at least 1 mm of white in fresh plumage. There is some overlap in pale marks on the edge of the primaries, size of the tail spots, barring on the mantle and the barring of the underparts. Comparison of juvenile *C. canorus* from Europe, central Asia, India, China and Japan indicates no consistent difference in plumage among specimens from these areas except that the (few) central Asian birds were paler. I have therefore not attempted to identify subspecies of *C. canorus* wintering in Africa.

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Confirmation of the occurrence of the Egyptian Nightjar *Caprimulgus aegyptius aegyptius* in Ethiopia

by R. W. Ashford & R. S. Bray

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Urban & Brown (1971) mention the Egyptian Nightjar *Caprimulgus aegyptius* as having been included by Smith (1957) in his checklist of the birds of Eritrea, on the basis of records by Moltoni & Ruscone (1940). These records have been ignored by Mackworth-Praed and Grant (1957) and White (1965). In the collection of the British Museum is one specimen labelled Abyssinia, but this is very old, and even the area of the collection from which it comes is doubtful. Clearly this species has rarely been recorded in Ethiopia, and is not known from south of Eritrea.

On 30 January 1971 whilst catching birds for serum samples in light acacia woodland at Lake Koka (8° 26′ N, 39° 01′ E) in Shoa Province, Ethiopia, a nightjar which subsequently proved to be of this species was collected. The identification was confirmed by Mr. D. Goodwin, at the British Museum, as the nominate race *C. a. aegyptius.*

Dr. J. S. Ash (pers. comm.), who has worked in this area at different times of the year, states that he has only recorded two species of nightjar there, the Plain Nightjar *C. inornatus* (one example) and the Slender-tailed Nightjar

C. clarus which is very common and breeds. The area is inhabited by a large number and variety of Palaearctic migrants.

This record confirms the occurrences of the Egyptian Nightjar in central Ethiopia, and considerably extends its known wintering range.

Thanks are due to Dr. J. S. Ash of N.A.M.R.U. 5, Addis Ababa for his comments, and for having the skin, which remains with him, prepared, and to the staff of the British Museum for their assistance in identification.

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First African records of two Malagasy sea-birds

by Peter L. Britton

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Despite the proximity of some Indian Ocean (Malagasy) islands to the East African coast, there is little evidence that their breeding sea-birds reach mainland Africa, where frigatebirds (Fregatidae), tropicbirds (Phaethontidae) and other characteristic Malagasy breeding sea-birds are rare or unknown. This note reports the occurrence of two such species near Mombasa, Kenya, during the 1976 southeast monsoon (April–November).

Lesser Noddy *Anous tenuirostris*

A flock of varying size (110–220) was seen almost daily at Ras Iwetine (4° 01′ S, 39° 44′ E), 25 August–28 September 1976, settling on or near a fish trap of vertical mangrove poles at high tide, and settling on the outer reef when it was exposed. A single bird was present on 2 December. With the assistance of R. Haller, a sub-adult male with moulting primaries, stomach empty, was collected for the National Museum, Nairobi, on 31 August, weighing 97·4 g, wing-length 220 mm.

An emanciated, recently dead sub-adult, stomach empty, weight 60 g, wing-length 209 mm, was found (wings retained) on the top of Kisite Island (4° 44′ S, 39° 24′ E) on 10 December 1976, when at least 20 were present on the island's sand beach; none had been present there on 4 September or 10 October. P. Hemphill, of the nearby Pemba Channel Fishing Club, reliably noted them at sea regularly between September and December 1976 in similar numbers (dozens) to the Brown Noddy *A. stolidus*, though he has fished these waters as much as six days a week for many years and has not previously noted noddies of two sizes.

A further reliable report of *tenuirostris* is of at least 50 seen by R. Haller at Ziwayu Island (2° 36′ S, 40° 35′ E) on 27 October 1976, from a dhow which Haller with others sailed from Mtwapa (3° 57′ S.) to Kiwaiyu (1° 59′ S.) over a three week period, during which they sighted *stolidus* regularly, including as many as 1000 at Tenewe Island (2° 27′ S, 40° 47′ E), but no other *tenuirostris*. Small numbers of *stolidus* breed on the north Kenya coast (Britton & Brown 1974), and it is regularly reported by anglers at sea, but there are few inshore records (Britton & Britton 1976). It was, however, widespread in scores or hundreds on the north Kenya coast in August and September 1976 (L. H. Brown, W. J. Plumb). The rather brown sub-adult *tenuirostris* was not easy to recognise when alone, but readily recognisable when seen alongside the larger *stolidus*.

With the assistance of the curator, the Ras Iwetine specimen has been compared with seven National Museum specimens of *A. t. tenuirostris*, collected by Parker (1970) in the Amirantes, 1500 km east of Kenya and the nearest breeding station (Bailey 1968). This specimen and other Kenya birds have the characteristic head pattern of nominate *tenuirostris*, which is confined to the western Indian Ocean where it is mainly sedentary around breeding sites (Bailey 1968). Though Ashmole (1962), White (1965) and others consider the White-capped Noddy *A. minutus* of the Pacific and Atlantic Oceans conspecific with *A. tenuirostris*, under the latter name, I prefer to follow Murphy (1936), Alexander (1963) and Serventy *et al.* (1971) in retaining them as two distinct species, for the reasons given by the last authors. White (1965) lists *tenuirostris* for Africa, referring to *A. minutus atlanticus* in West Africa, but there is no previous record of Indian Ocean *tenuirostris* in African waters. In 208 days of observations in the western Indian Ocean, Bailey (1968) recorded this species only four times, all around 58° E, at most 320 km from a known nesting site, so that its occurrence in African waters should be considered exceptional. If wind-blown by the southeast monsoon, Kenyan birds may well have originated from Mauritius or Cargados Carajos, 3000 km to the southeast, rather than the geographically closer Amirantes.

Red-footed Booby *Sula sula*

An immature bird, accidentally hooked on a lure by R. S. Richards while fishing 8 km off Kilifi at 3° 37′ S, 39° 56′ E on 24 October 1976, is still alive at Birdland, Malindi, in the care of Mr. & Mrs. B. M. B. Glover who have kindly let me examine it on several occasions. It was successfully released by Richards three times, flying strongly from the roof of his boat to take the lure again, but it would not fly a fourth time. Its extreme tameness led Richards to believe that it might have been a pet aboard a ship, though it is seldom at ease in the presence of unfamiliar people at Birdland. When first seen on 21 November it was brown all over but by 15 January 1977 it had white feathers on the lesser coverts of both wings and on the forecrown. With measurements (mm) of 363 (wing), 84 (bill) and 36 (tarsus) it is too small for other *Sula* species (Alexander 1963, Serventy *et al.* 1971). The tail is broken but tail feathers are narrow, as described by Murphy (1936), maximum width 26 mm. Legs and feet are pink, irides beige with some dark brown spots, bill blackish and facial skin blue. The bare skin on the throat was black in November but blue in January.

According to White (1965) there is no satisfactory record from African coastal waters. A record from Port Sudan on 7 November 1920 (Ticehurst 1924) is included by Mackworth-Praed & Grant (1952) and Meinertzhagen (1954), but it is based on only a wing retained for Ticehurst by the keeper of the Sanganeb Light, with no details of plumage or measurements, and it is not included in the avifauna of Sudan by Cave & Macdonald (1955). Bailey (1968) saw fair numbers of both adults and immatures between the Seychelles and East Africa in September and October, though most of his records were near breeding stations to the north and east of Madagascar. Away from Latham Island, Tanzania, where both *S. leucogaster* and *S. dactylatra* breed (Parker 1970), boobies are uncommon in East Africa. I know of no inshore records in Kenya, where most reports are the casual observations of anglers who cannot be expected to identify the immature birds which form the majority of sightings. All western Indian Ocean nesting sites lie to the southeast of Kenya, so that wandering immatures may reach East African waters regularly during the southeast monsoon.

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First known breeding of the Ruddy Shelduck *Tadorna ferruginea* south of the Sahara

by J. S. Ash

Received 12 February 1977

In April 1975, accompanied by my wife and daughter, I travelled over the Saneti Plateau in the Bale Mountains of southern Ethiopia. This is a remote and beautiful area lying between 3800 and 4377 m, averaging about 4140 m (Waltermire 1975). Typically the vegetation is afro-alpine between these altitudes, and in this area is above the *Erica arborea* zone. There are many small tarns, most of which do not seem to have been mapped, scattered about the plateau, but many are grouped around 6°51′N, 39°49′E (the latest map names this mountain Sante Ye'Terara Ch'ae).

Many of the tarns held a pair of Ruddy Shelduck *Tadorna ferruginea*, which were apparently fairly common in the area, most of them paired or single. On the larger lake of some 75 hectares, which I shall call Lake Deemtu (3890 m), there were at least 52 ducks present on 6 April. Such large numbers of this species are quite unprecedented in Ethiopia (see below), and the date is late for Palaearctic migrants: breeding seemed possible, and although the birds' behaviour – the attachment of pairs to particular restricted areas and their vociferous reaction to our arrival – gave support to this, we were unable to obtain any direct evidence.

Dr. S. J. Tyler visited the area 3 weeks later in May 1975, and especially looked for signs of breeding. She did not reach Lake Deemtu, but found many pairs on some of the smaller tarns, and recorded behaviour similar to that we had seen a month earlier (Anon 1975). Mr. T. Fison, a non-ornithologist, trekked over the area on mule-back a year later in May 1976. Following my description of the birds, he made a point of looking out for them, and recorded about 7 pairs on the tarns he passed; he did not visit Lake Deemtu.

I revisited the area, 21–23 June 1976, with my wife and Dr. and Mrs. V. H. Lee. We found 4 pairs and 3 single birds on about ten of the smaller tarns we examined, but we put our main effort into reaching Lake Deemtu, which can be reached from a high point to the east in about an hour's walk on a compass bearing. On 22 June there were at least 46 adult Ruddy Shelduck present, mostly in ones, twos and threes, and with them three broods of young. The oldest brood consisted of two ducklings judged to be 3–4 weeks old, the next had five young about 2 weeks old, and the third had ten young 7–10 days old. On our approaching a brood, the adult – we never saw more than one adult with a brood – promptly abandoned its young and flew off for a considerable distance without showing undue distress. When we left the lake after about an hour both the larger broods could be seen, each with an attendant parent.

Lake Deemtu is roughly circular, about a kilometre in diameter, but with a small southerly extension. There are several small rocky islets, two of which have some vegetation including several Giant Lobelias *Lobelia rhyncopetalum*, and at the northwest edge a stretch of stone cliffs reaching to about 45 m. All the smaller tarns seem to lack the islets and cliffs, although one other, apparently named Garba Guracha, at about 6°53′N, 39°52′E, visited by Fison, and with duck on it, was surrounded by stone cliffs on three sides.

On my first visit, 6 April 1975, there were large numbers of waterfowl and wetland birds of 17 species on Lake Deemtu, as well as 12 characteristic landbird species in the immediate area, and at a slightly lower altitude 7 additional species (see Appendix). The list includes, astonishingly, over half of Ethiopia's endemic species of birds in this small area, and in addition there are several particularly interesting endemic mammals such as the Simien Fox *Canis simensis* and Mountain Nyala *Tragelaphus buxtoni*. It is therefore gratifying that the Saneti Plateau is included in the proposed Bale Mountains National Park.

Urban & Brown (1971) describe Ruddy Shelducks as Palaearctic migrants Sep–Mar, throughout the country at above 2000 m, uncommon to rare on larger freshwater lakes and rivers, alkaline lakes and highland streams and marshes up to 3700 m. They further classify this montane habitat as: a) Giant Lobelia – *Alchemilla* – tussock grass moorland, at 3800–4100 m, and b) Giant heath (*Erica*) moorland at 3500–3800 m. The birds we saw on the Saneti Plateau were all above 3800 m, but we described the habitat as open *Helichrysum* scrub with Giant Lobelia patches, i.e., the "paramo belt" of Lind &

Morrison (1974). Moreau (1972) states that this shelduck is resident in southern Spain and the Maghreb, but that in its main range from the Aegean eastwards to Amurland, it is largely migratory, most going to southern Asia, though in the Sudan it is listed as common north of Khartum; he also states that a very few have recently been found in Abyssinia.

With the discovery of a breeding population in Ethiopia, there must now be doubt as to whether other records within the country refer, as assumed up to now, to Palaearctic migrants. Table 1 lists all the records I have been able to trace.

TABLE 1

Occurrences of *Tadorna ferruginea* in Ethiopia

Date	*Locality*	*Co-ordinates*	*Altitude (m)*	*Nos.*	*Authority*
17 Dec 1904	Asmara	15.20N, 38.55E	2300	1	Dal-Fiume 1907
?	Angua Mesh†	?	?	?	Moltoni & Ruscone 1944
10 Aug 1965	Lake Abiata	7.40N, 38.35E	1573	2	Urban 1971
12 Feb 1966	Upper Ueb*	*c.*6.51N, 39.32E	3455	Sev. prs.	L. H. Brown
8 & 22 Oct 1967	Gefersa	9.03N, 38.40E	2605	1	Urban 1971
Feb 1967	nr. Dinshu*	7.05N, 39.45E	3000	1	Urban 1971
early Aprl 1968	nr. Dinshu*	7.05N, 39.45E	3000	1	Urban 1971
1966–1969	Dubte	11.43N, 41.00E	380	Rare	Hill *et al.* 1970
13 Jan 1969	Akaki	8.50N, 38.44E	3070	2	E. K. Urban
9 Nov 1969	Akaki	8.50N, 38.44E	3070	1	Ash
post-1969	Upper Ueb*	6.51N, 39.32E	3660	?	Waltermire 1975
24 Jan 1970	Akaki	8.50N, 38.44E	3070	2	Moore 1970
7 & 9 Feb 1975	Bahadu	10.15N, 40.28E	530	2	Ash
6 Apr 1975	Saneti Plateau*	See text	See text	67+	Ash
10 May 1975	nr. Mt. Gaysay*	7.12N, 39.45E	3040	2	Ash
10 May 1975	Saneti Plateau*	See text	See text	Many	Anon 1975
May 1976	Saneti Plateau*	See text	See text	14±2	T. Fison
21–22 Jun 1976	Saneti Plateau*	See text	See text	57+	Ash

* All these observations are in the same general area of the Bale Mountains and are within the proposed National Park.

† Moltoni & Ruscone (1944) refer to this locality as "Angua Mesh presso il Monte Erer", which I am unable to trace. Italian maps of this period show only one Mt. Erer at 03° 52′ N, 39° 46′ E, close to the Kenya border, but this seems unlikely habitat for any duck. Urban (1971) does not refer to this record, but does include Dal-Fiume's (1907) from Asmara.

The records based on the Bale Mountains, in February and April to June, include the breeding population, which is presumably a resident population restricted to this small area of open plain and scattered tarns lying to the northeast of Lake Deemtu. Other records in the same neighbourhood, such as those at Dinshu and Gaysay in February, April and May are presumably local wanderers from this population, which may indeed be larger and more widespread, since Waltermire (1975) reports shelducks from the upper Ueb, as also does Urban (1971), though without indicating numbers. The map in Waltermire's paper shows several tarns around 6°51′N, 39°32′E, apparently a habitat similar to the Saneti Plateau and thus suitable for shelduck.

The remaining records comprise at least 11 individuals in scattered localities between 10 August and 9 February. These may well be Palaearctic migrants, but equally well may be wanderers from the Bale Mountains.

The fact that this species was not recorded from the Bale Mountains before 1967 does not imply that a new population had established itself there. This part of Ethiopia is very difficult to travel in and there must have been very few visitors prior to that time. The spate of new records in other parts of the country could be credited to a new population in Bale, but they are just as likely to have been due to the influx of keen observers about that time and to the formation of a local wildlife society. Another area which needs to be watched for possible breeding is the Gefersa/Akaki region which resembles the habitat of this species in Morocco, though it is very different from the Bale Mountain habitat.

The population of *Tadorna ferruginea* in the Saneti Plateau area is probably about 30–35 pairs, but with other suitable habitat known to exist in this poorly explored country, there may be twice this number. A thorough search of the area, preferably in May or June would be very rewarding.

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APPENDIX

Birds seen in April 1975 and June 1976 at Lale Deemtu, Ethiopia, 3890 m a.s.l.

On 6 April 1975 large numbers of wildfowl were present, including Teal *Anas crecca* 2, Yellow-billed Duck *A. undulata* 7, Pintail *A. acuta* 200, Garganey *A. querquedula* 1, Shoveler *A. clypeata* 250. Other wetland species there or in the immediate area (*=endemic to Ethiopia) included Little Grebe *Podiceps ruficollis*, Wattled Ibis *Bostrychia carunculata**, Blue-winged Goose *Cyanochen cyonoptera**, Wattled Crane *Grus carunculatus*, Rouget's Rail *Rallus rougetii**, Spot-breasted Plover *Vanellus melanocephalus**, Wood Sandpiper *Tringa glareola*, Common Sandpiper *T. hypoleucos* and Little Stint *Calidris minuta*.

In June 1976, there were 2 Shovelers still present, as well as Black Duck *A. sparsa* 2, Wigeon *A. penelope* 6 and Crested Coot *Fulica cristata* 4. Characteristic land birds seen in the immediate vicinity included Lanner Falcon *Falco biarmicus*, Grey-wing *Francolinus psilolaemus*, Chestnut-naped Francolin *F. castaneicollis*, White-collared Pigeon *Columba albitorques**, Short-crested Lark *Galerida malabarica*, Pale Crag Martin *Hirundo fuligula arabica*, Red-throated Pipit *Anthus cervinus*, Abyssinian Longclaw *Macronyx flavicollis**, Hill Chat *Cercomela sordida*, Black-headed Siskin *Serinus nigriceps**, Slender-billed Chestnut-winged Starling *Onychognathus tenuirostris* and Chough *Pyyrhocorax pyrrhocorax*.

In addition to the 7 endemics listed above 7 others occur in the same area at a slightly lower altitude: Yellow-fronted Parrot *Poicephalus flavifrons**, Black-winged Lovebird *Agapornis taranta**, Golden-backed Woodpecker *Dendropicos abyssinicus**, Abyssinian Catbird *Parophasma galinieri**, White-backed Black Tit *Parus leuconotus**, Black-headed Forest Oriole *Oriolus monacha** and Thick-billed Raven *Corvus crassirostris**.

Thus over half of Ethiopia's endemic species of birds can be found in this relatively small area.

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Blyth's Pipit *Anthus godlewskii* in the Western Palaearctic

by Kenneth Williamson

Received 17 February 1977

When preparing a paper in 1963 ('The identification of the larger pipits'—*Brit. Birds* (1963) 56: 285–292), I found a specimen in the British Museum (Natural History), Tring, determined as "*Anthus campestris*" which I pointed out had been wrongly identified—since when it has been placed with the Blyth's Pipits *A. godlewskii*. The specimen was collected at Brighton, Sussex in October 1882 and is *ex coll.* Swaysland, reg. no. 83–10–10–1. It has been examined recently by Dr. D. W. Snow and P. Coulston, both of whom agree with my identification. In my paper I commented that *A. godlewskii* could occur as a vagrant in Britain, and despite a rejection of this view by Grant ("Field identification of Richard's and Tawny Pipits"—*Brit. Birds* (1972) 65: 287–290) one was obtained in Finland in September 1975. It therefore seems appropriate to record the B.M. specimen, the first and only one known from the British Isles, and the following are the details of identification of this skin, which in plumage is similar to Richard's Pipit *A. novaeseelandiae richardi*.

Measurements:

Wing 85 mm. Tail 62 mm. Bill (to skull) 16 mm.
Tarsus 28 mm. Hind claw 11 mm.
Wing formula: 2nd=3rd=4th; 5th, 1 mm. shorter; emarginated 2nd–4th.

Penultimate tail-feather; point of white wedge on inner web 20 mm. from tip; ultimate 10 mm. of shaft white. [See Hall "Notes on specific identification of the Tawny Pipit (*Anthus campestris*), Blyth's Pipit (*A. godlweskii*) and Richard's Pipit (*A. novaeseelandiae*) in Asia"—*J. Bombay Nat. Hist. Soc.* (1957) 54: 726–731; Hall "The Taxonomy and identification of pipits—genus *Anthus*"—*Bull. Brit. Mus.* (*Nat. Hist.*) *Zool.* (1961) 7: 243–289, pls. 56–61; and Williamson (1963)].

Discussion:

The wing and tail measurements are at the low limit of the range for *A. n. richardi* given by Hall and by Williamson, who examined 30 and 24 specimens respectively. They fall within the ranges for *campestris* and *godlewskii*. Tail length expressed as a percentage of wing-length is 72, which is well outside the range found for *richardi* (75–88) and within that found for *godlewskii* (68–81). It is also below the limit found for *campestris* (75–83).

Bill length is within the range for both *campestris* and *godlewskii*. Tarsus length is at the upper limit for both species and at the lower limit for *richardi* (Hall's and my own measured series). The bill is *not* broad and deep as it is in *richardi*, being similar in structure to *campestris*. The wing/tarsus ratio is 2·9 which falls outside the range 3·3 – 3·8 given by Hall for *campestris*, and is at the low limit of 2·9 – 3·3 for *richardi*.

The hind claw is curved, not straight as it is in most *richardi*, and the curvature is typical of *godlewskii*. It falls well short of the 14–19 mm given for 30 specimens of *richardi* by Hall, and the 13½–19 mm of my own series of 24. 11 mm is rare in *campestris* and is in the middle of the range for *godlewskii*.

The tail pattern matches that of *godlewskii*.

Summary:

Characters affirming the error of the original identification of the Brighton bird as *Anthus campestris* are:

(a) plumage, similar to *n. richardi*, not to *campestris*;
(b) wing/tail ratio outside measured range;
(c) wing/tarsus ratio outside measured range;
(d) hind-claw too long;
(e) tail pattern "wrong".

Distinction then remains to be made between *A. godlewskii* and small aberrant *richardi*. The wing/tail ratio and hind claw measurements exclude *richardi*. The only characters suggestive of *richardi* (and neither of these excludes *godlewskii*) are the plumage and the wing/tarsus ratio. On the other hand the tail pattern is typical of *godlewskii*, and the other characters detailed above support the identification.

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Further bird weights from Panama

by Joseph G. Strauch, Jr.

Received 18 February 1977

Recently Burton (1973, 1975) published the weights of birds collected in Panama and Columbia during the British Trans-American Expedition, 1971–2. During 1971–3 I recorded a series of weights in Panama which greatly augments his data. In contrast to Burton's specimens, almost all of mine were sexed by direct examination of gonads. Most of them are now preserved as skeletons in the collection of The University of Michigan Museum of Zoology. Weights recorded to the nearest gramme were taken with a Pesola balance soon after death. Weights recorded to the nearest tenth of a gramme were taken with an Ohaus triple-beam balance on birds which had been sealed in plastic bags and stored on ice soon after death and weighed later in the same day. In all, there are 540 weights of 207 species, 80 of which were also reported by Burton.

Unless otherwise indicated, specimens were obtained in lowland areas of Panama Province and the Pacific half of the Panama Canal Zone. (My easternmost collecting localities overlap Burton's two westernmost collecting localities.) Specimens collected on the Pipeline Road in the Canal Zone are included under this heading even though some of them were taken on the Atlantic side of the Continental Divide. Specimens were also obtained at Cerro Jefe (CJ: about 1100 m a.s.l., eastern Panama Province), 9° 15′ N, 79° 25′ W; Cerro Campana (CC: about 1000 m a.s.l., western Panama Province), 8° 40′ N, 79° 55′ W; Cerro Punta (CP: about 1800 m a.s.l., Chiriqui Province), 8° 55 N, 82° 35′ W; near Changuinola, Bocas del Toro Province (BT), 9° 30′ N, 82° 30′ W; and on the Atlantic side of the Canal Zone and adjacent Colon Province (AS). Details on most of these areas may be found in Ridgely (1976). The information for each specimen includes location (if not from the Pacific lowlands), sex, month, weight (in grammes), and breeding condition if indicated by gonad development, in that order. Nomenclature follows Ridgely (1976).

Crypturellus soui: ♀ Apr. 260·5
Hydranassa tricolor: ♀ Oct. 283·7
Agamia agami: ♂ Mar. 602·5
Tigrisoma mexicanum: ♀ Mar. 1085·1
Cochlearius cochlearius: (AS) ♀ Sep. 503·1 (breeding)
Micrastur semitorquatus: ♂ Aug. 513·0
Porzana carolina: ♀ Nov. 50·8

Gallinula chloropus: ♂ Sep. 332·1

Jacana jacana: ♂ Aug. 84·5

Pluvialis squatarola: ♂ Feb. 196·2

Charadrius semipalmatus: ♂♂ Feb. 39·3; Nov. 36·9; ♀♀ Mar. 42·4; Oct. 41·4; Nov. 37·0, 38·6, 38·6, 39·1, 39·2, 39·5; Dec. 37·1, 40·0, 45·0

Charadrius collaris: ♂♂ Feb. 30·9; Oct. 26·5, 26·7; Nov. 26·1, 31·0; Dec. 27·5; ♀♀ Feb. 28·1, 29·0, 29·2, 30·0; Aug. 28·5; Oct. 29·0, 30·4; Nov. 25·8, 26·1, 27·7, 29·5; Dec. 27·5

Charadrius wilsonia: ♂♂ Feb. 48·6; Mar. 52·2, 52·9, 53·1, 54·3, 55·1, 66·2, 67·0; Oct. 45·2, 50·4, 63·2; Nov. 48·2, 48·9, 50·2, 53·1, 54·1, 54·6; Dec. 50·9; ♀♀ Feb. 65·5; Mar. 49·4, 54·8, 59·7, 70·4, 80·0; Oct. 48·4, 49·4, 49·8, 52·0, 54·4, 55·6, 55·9, 56·1, 57·1, 57·4; Nov. 48·9, 53·4, 60·0; Dec. 47·2, 54·4

Bartramia longicauda: ♂♂ Oct. 125·5, 130·6

Numenius phaeopus: ♂ Jan. 385·6

Tringa flavipes: (AS) ♂ Nov. 71·3

Catoptrophorus semipalmatus: ♂ Apr. 406·2; ♀♀ Jan. 314·6; Feb. 348·8; Apr. 266·3, 429·7

Aphriza virgata: ♂ Feb. 155·3; ♀ Feb. 148·0

Calidris alba: ♀ Feb. 51·1

Calidris mauri: ♂♂ Jan. 21·9; Mar. 30·0; Dec. 24·8; ♀ Feb. 26·9

Sterna hirundo: ♂♂ Feb. 97·6, 108·4; May 105·6, 121·6; ♀ May 105·6

Thalasseus sandvicensis: ♀ May 201·8

Columba cayennensis: (BT) ♀ Nov. 250

Columbina minuta: ♂ Jun. 37·0; ♀ Jun. 35·6 (both breeding)

Columbina talpacoti: ♂ Oct. 44·4; ♀♀ Sep. 47; Oct. 41·2

Claravis pretiosa: ♂♂ Apr. 69·0; Aug. 68·5 (breeding): ♀ Aug. 74·8 (egg in oviduct)

Leptotila cassinii: (AS) ? Feb. 166·9

Brotogeris jugularis: ♀ Feb. 68·3

Amazona autumnalis: (AS) ♂ Mar. 411·2

Piaya minuta: ♀ Jan. 43·8

Crotophaga major: ♂♂ Jan. 166·7; Feb. 162·1; ♀♀ Feb. 139·5; Apr. 145·1

Crotophaga ani: ♂♂ Feb. 123·7; May 118·7, 133·1; Jun. 116·8; Sep. 107·7, 111·6, 115·6; Oct. 114·5; Nov. 121·7; Dec. 124·3; ♀♀ Apr. 88·7, 89·7; May 84·5, 89·0 93·8, 94·8; Jun. 94·4, 97·5, 106·1; Sep. 81·8, 85·4; Nov. 86·5

Crotophaga sulcirostris: ♂♂ May 68·1, 70·2, 84·1; Sep. 77·9; Oct. 62·0, 71·6, 71·6, 73·8; Nov. 70·3; Dec. 61·1; ♀♀ Jan. 67·2; Apr. 57·1, 59·1, 63·8; May 55·3, 60·8, 64·1; Nov. 63·0; Oct. 61·9, 63·8, 66·7; Dec. 63·0

(BT) ♂♂ Apr. 84·6; Nov. 83·5, 85·6, 87·2; ♀♀ Apr. 64·6, 66·2, 79·8; Nov. 66·1, 66·7, 70·2

Tapera naevia: ♀♀ Apr. 52·4; Jun. 56·8 (breeding)

Chordeiles acutipennis: ♀ Jan. 46·3

Chaetura brachyura: ♀ Jun. 16·8

Glaucis hirsuta: ♂♂ Jan. 6·6; Sep. 8·2

Phaethornis guy: (CP) ♂ Apr. 6·1

Phaethornis superciliosus: ♂ Aug. 6·7

Anthracothorax nigricollis: ♂ Jan. 7·0; ♀ Aug. 6·7

Chlorostilbon assimilis: ♂♂ Feb. 3·7; Sep. 3·4; (BT) ♂ Apr. 4·1

Thalurania colombica: (CC) ♂♂ Apr. 4·6, 4·6

Damophila julie: ♂♂ Jan. 3·3; Aug. 3·6, 4·4

Goldmania violiceps: (CJ) ♂♂ Apr. 3·8, 4·0; ♀♀ Feb. 3·9; Apr. 3·4 (breeding), 3·6 (breeding), 3·8

Amazilia edward: ♂♂ Oct. 5·1, 5·4; ♀♀ Jan. 4·3; Sep. 4·3 (breeding), 5·2 (breeding); Oct. 4·7

Amazilia tzacatl: ♂♂ Jan. 5·1; Oct. 4·4; (BT) ? Apr. 5·6

Chalybura buffonii: ♂♂ Sep. 6·8 (breeding); Oct. 6·9, 7·0; ♀ Apr. 7·9

Lampornis castaneoventris: (CP) ♂ Apr. 6·3; ♀♀ Apr. 4·7, 5·0, 5·3

Heliodoxa jacula: (CP) ♂ Apr. 9·5

Heliomaster longirostris: ♂ May 6·9

Selasphorus scintilla: (CP) ♀ Apr. 2·0

Trogon aurantiiventris: (CC) ♂ Apr. 68·5; ♀ Apr. 67·4

Trogon rufus: ♀ Jan. 52·1

Electron platyrhynchum: ♀ Jan. 61·2

Momotus momota: ? Apr. 94·0

Notharchus macrorhynchus: ♂ Dec. 106·2
Notharchus pectoralis: ♂ Mar. 69·1
Malacoptila panamensis: ♂ Jan. 36·9; ? Mar. 41·9
Nonnula frontalis: (AS) ♀ Oct. 19·5
Monasa morphoeus: ♂ Mar. 90·5
Aulacorhynchus prasinus: (CP) ♀ Apr. 167 (egg in oviduct)
Picumnus olivaceus: ♂ Aug. 10·0
Celeus loricatus: ♂ Oct. 78·5; ♀ Mar. 79·8
Dryocopus lineatus: ♀ Apr. 177·7
Melanerpes rubricapillus: ♀ Mar. 47·0
Melanerpes pucherani: ♂ Apr. 75·8; ? Mar. 60·4
Campephilus melanoleucos: ♂ Oct. 225·3 (breeding)
Dendrocincla fuliginosa: (AS) ♂♂ Mar. 36·0, 42·5
Dendrocolaptes certhia: ♂♂ Mar. 70·0; Sep. 71·7; ♀ Mar. 73·9; (AS) ♀ Mar. 72·7
Xiphorhynchus guttatus: ♀ May 48·9; ? May 58·2
Xiphorhynchus lachrymosus: ♂♂ Feb. 53·8; Oct. 55·1
Synallaxis albescens: ♀ Apr. 14·2
Xenops minutus: ♀♀ Jan. 11·2; Sep. 12·0
Sclerurus guatemalensis: ♀ Mar. 36·0
Cymbilaimus lineatus: (AS) ♂ Mar. 32·9
Taraba major: ♂ Jul. 66·4
Thamnophilus doliatus: ♂ May 23·9
Thamnophilus punctatus: ♂ Mar. 22·8; ♀ Mar. 22·1
Myrmotherula fulviventris: ♀ Mar. 10·3; ? May 9·9
Myrmotherula axillaris: ♂♂ Mar. 7·9, 8·1
Cercomacra tyrannina: (CC) ♀ Apr. 15·3
Cercomacra nigricans: ♂ Mar. 17·2
Gymnocichla nudiceps: (AS) ♂ Mar. 27·9
Myrmeciza exsul: ♀ Nov. 26·1
Gymnopithys leucaspis: ♂♂ Mar 29·4 (breeding), 29·8 (breeding), 31·0; ♀ Mar. 32·3
Hylophylax naevioides: ♂♂ Mar. 16·2; Sep. 15·5
Phaenostictus mcleannani: ♂♂ Mar. 50·5, 51·6; ♀♀ Mar. 51·5; May 44·9
Pipra coronata: ♂ Nov. 10·7; ♀ Nov. 10·7
Pipra mentalis: ♀ Mar. 14·1
Chiroxiphia lanceolata: ♂♂ Apr. 17·5; May 15·6; ♀ May 22·3 (breeding)
Corapipo altera: (CC) ♂♂ Mar. 11·5, 12·3; ♀ Apr. 12·6
Manacus vitellinus: ♂♂ May 18·0; Aug. 18·7; ♀ Aug. 14·9
Schiffornis turdinus: ♀ Mar. 33·1
Attila spadiceus: ♂ Nov. 38·8
Laniocera rufescens: ♂ Mar. 48·1
Pachyramphus cinnamomeus: ? May 20·1
Pachyramphus polychopterus: ♀ Jul. 20·4; (BT) ♀ Apr. 23·6
Tityra inquisitor: ♂ Apr. 46·1
Querula purpurata: ? Mar. 101·6
Colonia colonus: ♀ Jan. 16·2 (breeding)
Fluvicola pica: ♀ Apr. 10·4 (imm.)
Muscivora forficata: ♂ Sep. 27·4
Legatus leucophaius: ♂ Aug. 24·8
Sirystes sibilator: ♂ Feb. 35·2 (breeding)
Myiodynastes maculatus: ♂ Feb. 44·3 (breeding)
Megarhynchus pitangua: ♀ Apr. 82·2 (egg in oviduct); (BT) ♂ Nov. 67·6
Myiozetetes cayanensis: ♂♂ Feb. 25·4 (imm.); Aug. 24·8; ♀ Feb. 23·2 (breeding)
Pitangus sulphuratus: ♂ Aug. 63·7
Pitangus lictor: ♂♂ May 23·1, 23·6
Myiarchus crinitus: ♂ Feb. 36·5
Myiarchus panamensis: ♂ Mar. 28·1 (breeding)
Myiarchus tuberculifer: ♀ Apr. 17·7; ? Mar. 20·4; (CJ) ♂ Feb. 21·3
Nuttallornis borealis: ♂ Sep. 30·5
Contopus virens: ♂ Oct. 13·5
Contopus sordidulus: ♂ Oct. 13·0
Myiobius sulphureipygius: ♂♂ Oct. 11·8, 12·7
Myiophobus fasciatus: ♂ Oct. 9·5; ♀ Sep. 8·4
Cnipodectes subbrunneus: ♂ Nov. 27·2; ♀♀ Nov. 21·1, 23·4

Tolmomyias sulphurescens: ♂♂ Feb. 14·2; Sep. 15·9
Rhynchocyclus olivaceus: ♀ Jan. 21·1
Todirostrum cinereum: ? Oct. 6·4
Phylloscartes flavovirens: ♀ Sep. 8·8
Capsiempsis flaveola: ♂ Aug. 8·0
Elaenia flavogaster: ♂♂ Oct. 25·4 (breeding); Nov. 23·6; ♀♀ Jan. 23·0; Sep. 24·8
Elaenia chiriquensis: (CP) ♀ Apr. 19·1 (breeding)
Elaenia frantzii: (CP) ♂♂ Apr. 19·1, 19·1, 21·1 (breeding), 22·0
Camptostoma obsoletum: ♂ Feb. 8·2 (breeding)
Tyrannulus elatus: ♂♂ Jan. 8·0; May 8·6
Ornithion brunneicapillum: ♂ Feb. 7·1 (breeding); ♀ Feb. 7·2 (breeding); ? Feb. 6·9
Mionectes olivaceus: ♀ Nov. 14·7 (breeding)
Pipromorpha oleaginea: ♂ Oct. 10·0
Tachycineta albilinea: ♀ Aug. 13·6
Neochelidon tibialis: ♂ Jan. 9·2; ♀ Apr. 9·1
Campylorhynchus albobrunneus: ♂♂ Jan. 32·7; Apr. 34·0, 34·3
Thryothorus leucotis: ♂ Apr. 20·6
Thryothorus rufalbus: ♂♂ Feb. 27·7; Aug. 27·1
Thryothorus nigricapillus: (AS) ♀♀ Feb. 26·3; Mar. 22·8
Thryothorus fasciatoventris: ♀ Apr. 20·7 (breeding)
Thryothorus rutilus: ♂♂ Feb. 15·7; Apr. 15·3 (breeding)
Troglodytes musculus: ♂♂ Apr. 14·8; Oct. 14·7; ♀ Oct. 15·7
Henicorhina leucosticta: (CC) ♂ Mar. 16·1
Henicorhina leucophrys: (CC) ♂ Mar. 18·7; (CJ) ♂ Jul. 18·7
Microcerculus marginatus: ♀ Nov. 22·2 (breeding)
Cyphorhinus phaeocephalus: (AS) ♀ Feb. 24·6
Turdus assimilis: (CC) ♂ Mar. 66·2; ♀ Mar. 77·2
Myadestes melanops: (CP) ♂♂ Apr. 30·0, 32·6 (both breeding)
Polioptila plumbea: ♀ Feb. 6·2; (CJ) ♂ Feb. 6·4
Ramphocaenus rufriventris: ♀ Sep. 10·2
Vireo flavoviridis: ? May 16·6; (CC) ♂ Mar. 17·7
Hylophilus aurantiifrons: ♂ Apr. 9·6; ♀ Feb. 10·1
Hylophilus flavipes: ♂♂ Jun. 12·5; Aug. 11·3, 12·5; Sep. 12·7, 13; ♀♀ Aug .11·4, 12·1, 12·1, 13·2; Sep. 13; Oct. 13·7.
Diglossa plumbea: (CP) ♂ Apr. 9·3; ♀ Apr. 9·8
Chlorophanes spiza: ♀ Feb. 18·5 (breeding); ? Dec. 17·7; (CC) ♂ Mar. 19·6
Cyanerpes cyaneus: ♂♂ Jan. 13·0 (breeding), 13·1 (breeding); ♀♀ Jan. 14·7; Feb. 13·7 (breeding); ? Aug. 13·1
Dacnis cayana: ♂ Jan. 13·1 (breeding), 13·4; ♀♀ Jan. 13·6, 13·7; ? Sep. 14·5
Dacnis venusta: (CC) ♂ Apr. 17·1; ♀ Mar. 16·2 (both breeding)
Mniotilta varia: ? Dec. 10·3
Protonotaria citrea: ♀ Oct. 12·4
Dendroica pensylvanica: ♂ Mar. 10·2
Dendroica castanea: ♂ Jan. 11·4
Oporornis tolmiei: ♂♂ Sep. 11·5; Oct. 10·6
Basileuterus delatrii: ♀♀ Jun. 11·8; Aug. 10·1
Zarhynchus wagleri: (AS) ♂♂ Feb. 213·4, 239·4; ♀♀ Feb. 134·2, 141·3 (all breeding)
Gymnostinops montezuma: (AS) ♂ Apr. 528·5; ♀ Apr. 241·8 (both breeding)
Psarocolius decumanus: ♀♀ Jan. 178·3, 191·8 (both breeding)
Cacicus cela: ♂ Oct. 94·9
Cacicus uropygialis: ♂♂ Jan. 62·5, 71·7; Sep. 71·6; Dec. 71·4; ♀♀ Jan. 53·6, 54·2; May 50·0; Dec. 54·5, 57·6
Molothrus aeneus: ♀ May 54·0
Cassidix mexicanus: ♀ Aug. 112·0
Icterus auricapillus: ♂ Mar. 33·5
Icterus chrysater: ♂♂ Apr. 50·1; Sep. 57·7
Xanthocephalus xanthocephalus: (AS) ♂ Nov. 65·5
Sturnella magna: ♂ Jan. 97·5
Euphonia anneae: (CC) ♂ Apr. 15·0; ? Mar. 15·4
Euphonia fulvicrissa: ♂ Apr. 10·1
Euphonia minuta: ♂♂ Feb. 9·4 (breeding), 10·6; Oct. 9·9, 11·5; ♀ Feb. 11·2
Euphonia luteicapilla: ♀ Sep. 13·2
Euphonia laniirostris: ♂♂ Feb. 15·2 (imm.); Apr. 14·2, 14·2, 15·3; ♀♀ Feb. 16·5, Apr. 16·0; Oct. 14·5

Euphonia gouldi: (BT) ♂ Apr. 10·9
Tangara icterocephala: (CC) ♂♂ Mar. 22·0, 22·9, 24·7; ♀♀ Mar. 22·4, 22·6; (CC) ♀ Apr. 24·1
Tangara larvata: ♂ Feb. 17·7; ♀♀ Feb. 17·1, 18·5; Apr. 17·1; (BT) ♂ Apr. 23·9
Tangara inornata: ♂♂ Jan. 17·4; Feb. 18·8, 19·1; ♀♀ Apr. 18·1; Sep. 18·5
Tangara gyrola: (CC) ♂♂ Mar. 23·8, 23·8, 24·4 (breeding); ♀♀ Mar. 24·1, 25·2
Thraupis episcopus: ♂♂ Mar. 32·0; Oct. 31·5
Thraupis palmarum: ♂ Oct. 38·5
Ramphocelus dimidiatus: ♂♂ Sep. 27·3, 34·0; Oct. 29·2; ♀♀ Sep. 29·1; Oct. 25·4, 31·8
Ramphocelus icteronotus: ♂ Apr. 30·0; ♀♀ Apr. 31·1, 31·8 (all breeding)
Piranga rubra: ♂ Jan. 28·9
Piranga flava: (CC) ♂ Mar. 36·7
Habia fuscicauda: ♂♂ Feb. 39·9 (imm.); May 39·7; Jun. 40·1; Aug. 38·0; ♀♀ Feb. 34·2; Sep. 36·4; (AS) ♂ Feb. 42·0
Tachyphonus rufus: ♂ Aug. 30·9; ♀ Sep. 27·5
Tachyphonus luctuosus: ♂♂ Feb. 15·0; May 13·3; ♀ Mar. 13·8
Eucometis penicillata: ♀ Mar. 29·5
Rhodinocichla rosea: ♂ Feb. 51·8
Chrysothlypis chrysomelas: (CC) ♂ Apr. 12·5
Saltator maximus: ♀ Aug. 46·9
Saltator albicollis: ♂♂ Apr. 37·6; Sep. 39; Oct. 42·0, 43·9; ♀♀ Apr. 28·6 (imm.), 40·6 (breeding); Oct. 40·7; ? 35·3
Pitylus grossus: ♂ Sep. 43·5; ♀ May 50·4 (breeding)
Pheucticus ludovicianus: ♂ Jan. 47·3
Cyanocompsa cyanoides: ♂ Feb. 31·1; ♀ Oct. 31·4
Tiaris olivacea: ♂ Oct. 9·3; (CJ) ♂ Jul. 10·3
Sporophila aurita: ♂♂ Jun. 10·0; Oct. 10·0 (imm.), 11·6; ♀ Oct. 10·8; (BT) ♂ Apr. 11·9
Sporophila nigricollis: ♂ Jun. 9·9
Sporophila minuta: ♀ Jun. 8·3
Oryzoborus funereus: ♀ Jun. 13·4; (BT) ♂ Apr. 12·8; (CJ) ♂ Sep. 13·9
Arremon aurantiirostris: ♂♂ Jan. 33·7; May 33·4
Arremonops conirostris: ♂♂ Jun. 39·5 (imm.); Sep. 37·6; ♀ Apr. 38·8

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An undescribed subspecies of the Red-legged Honeycreeper *Cyanerpes cyaneus*

by Kenneth C. Parkes

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The Red-legged Honeycreeper *Cyanerpes cyaneus* is a widely distributed member of the "honeycreeper" group of tanagers (Emberizidae: Thraupinae) formerly placed in the composite "family Coerebidae" (Storer 1969). The species ranges from southern Mexico south to Bolivia and southeastern Brazil, and is highly polytypic. For the South American populations, the standard revisionary treatment was for many years that of Zimmer (1942), which, although correct in general outline, had the disadvantage of having been based only upon material available to the author at the American Museum of Natural History. The most recent treatment of the species is that of Storer (1970), who made available to me before publication his manuscript of the subfamily Thraupinae for the "Peters" Check-list, to which I added distributional information taken from the collections of Carnegie Museum of Natural History. In the case of *Cyanerpes cyaneus* (and some other tanagers), I also did some revisionary studies, and these, as indicated by Storer's footnotes and parenthetical remarks, were incorporated into his Check-list treatment. The present paper will serve to document some of the changes made by Storer from Zimmer's arrangement, at my suggestion.

Other than some adjustment in the ranges of subspecies, the principal differences between Zimmer's and Storer's treatment of *Cyanerpes cyaneus* are the recognition by Storer of *C. c. brevipes* (Cabanis) for the populations of the lower and middle Amazon, and acknowledgement of the existence in the southeastern portion of the species' range of an undescribed race (Storer 1970: 396), of which at that time I had not seen sufficient material to be able to define accurately its characters and range, since it was represented by only a few specimens in the collections of Carnegie Museum of Natural History (CM) and the American Museum of Natural History (AMNH). Subsequent examination of key specimens from the U.S. National Museum of Natural History (USNM) has verified the existence of this race, which is now belatedly described as new. A few preliminary remarks will explain some of the changes made from Zimmer's concept of the races of *Cyanerpes cyaneus*.

Zimmer's race *violaceus*, described from Matto Grosso, Brazil, is a good subspecies. Without having seen Bolivian specimens, Zimmer stated, however, that "it is probable that the specimens recorded from Guarayos, eastern Bolivia [see Hellmayr 1935: 253–254], belong to *violaceus*". This is confirmed by a series (CM) from the Río Surutú, Dept. of Santa Cruz (southwest of Guarayos), Bolivia (for coordinates, see Paynter *et al.* 1975). The range of *violaceus* extends even farther north and west, as indicated by a single male (CM) of this race from Hyutanahan, upper Rio Purús, Brazil (an area whose avifauna shows a number of Bolivian affinities). A moulting male (AMNH) from Borba, on the Rio Madeira, Brazil, approaches this race closely. Zimmer's colour comparisons of *violaceus* with nominate *cyaneus* are somewhat inaccurate as well as incomplete. He stated that females of *violaceus* "differ in color from those of *cyaneus* principally by duller yellowish inner margins of the remiges". In point of fact, the few female skins available do not show any clearcut difference in the yellow of the underwing. Geographic variation in colour of females will be discussed in more detail later. A character of males, mentioned in Zimmer's description of the type of *violaceus* but not in his diagnosis, is that the pale turquoise blue of the cap is separated from the black of the back by a distinct dark purplish band (the colour of the underparts), whereas in *cyaneus* males the cap colour blends posteriorly, and is still pale when the back is reached.

Specimens from the lower and middle Amazon, from the middle Tocantins west at least to Manacapurú, are like *cyaneus* in colour but have tiny bills (from nostril, 11–12·5 mm., mean 11·8 *versus* 13–16 mm., mean 14·4 in *cyaneus*). These should be *C. c. brevipes* (Cabanis), which was thought erroneously by the describer to have come from Porto Cabello, Venezuela, the source also of the type of his long-billed race *eximia*. Gyldenstolpe (1945) substituted "Pará" as the type locality of *brevipes*, but this was an unhappy choice as specimens from the vicinity of the *city* of Pará (now Belém) are not the small-billed bird, but are intergrades between Guianian *cyaneus* and the eastern Brazilian race to be described below. At my suggestion, Storer (1970) interpreted Gyldenstolpes "Pará" as meaning the *state* of Pará, and further restricted the type locality of *brevipes* to Santarém, a locality inhabited by the small-billed bird. That this fulfills Gyldenstolpe's intent is indicated by the latter author having called his specimens from the Rio Tapajóz (at the mouth of which lies Santerém) "*brevipes*." Zimmer rejected *brevipes* on the basis of "too much overlap" of bill measurements, but it is apparent that he did not understand the geographic pattern shown by the variation in bill size.

Gyldenstolpe (1945) called his specimens from the Rio Juruá, in westernmost Amazonas, Brazil, "*brevipes*", but the bill measurements cited and the colour description indicate that these birds are better referred to the northwestern race *dispar* Zimmer, and this treatment was adopted by Storer.

We turn now to the southeastern race, which may be called

Cyanerpes cyaneus holti subsp. nov.

Type: Carnegie Museum of Natural History no. 137834, adult ♂, collected at Pau Gigante (now Ibiraçu), Espirito Santo, Brazil (19°50′S, 40°22′W), 21 October 1940, by E. G. and M. L. Holt.

Characters: Adult males similar to *violaceus* Zimmer in having the turquoise crown patch restricted, especially posteriorly (thus differing from the adjacent races *cyaneus* and *brevipes*), but bill long as in *cyaneus*. Underparts and lower dorsum darker and more intensely coloured than *cyaneus* and *brevipes*, but not as purplish as *violaceus*. Yellow of inner webs of remiges of both sexes deeper and more sharply defined than in any of the three other races under discussion.

Range: Eastern Brazil from Pernambuco to Espirito Santo; Rio de Janeiro records (Hellmayr 1935) undoubtedly belong here. Occurs inland at least as far as Formosa, southeastern Goiás. Intergrades with *cyaneus* in easternmost Pará (Benevides, 32 km east of Belém) and Maranhão (Miritiba). Intergrades with *brevipes* in northernmost Goiás (Araguatins) and at Villa Braga, *c.* 256 km upstream (southwest) from Santarém on the Rio Tapajós.

Measurements: Among the four eastern South American races under consideration here, I found no significant differences in flattened wing length except that *violaceus* averages somewhat longer (means of adult ♂♂ as follows: *cyaneus* 63·6, *brevipes* 62·7, *holti* 63·4, *violaceus* 65·9 mm). This accords well with wing measurements given by Zimmer. Measurements of bill from anterior edge of nostril are as follows: *cyaneus* 13–16 (14·4); *brevipes* 11–12·5 (11·8); *violaceus* 11·5–13 (12·2); *holti* 12·5–14·5 mm (13·0). The bills of *holti* in addition to averaging longer than those of *violaceus*, are visibly more slender, especially at the base. As Zimmer has pointed out, bill length and wing length do not vary concordantly in this species: a better separation between *violaceus* and *holti* is shown by the bill/wing ratio. This ranges from ·187 to ·195 (·189) in *violaceus*, and ·192 to ·228 (·205) in *holti*.

Etymology: This subspecies is named to honour the collector, Ernest G. Holt, a gifted and versatile ornithologist all too little known to younger colleagues.

Specimens examined: All of the AMNH material listed by Zimmer (1942) was seen. All pertinent material in USNM was examined, but only those specimens that were taken to Pittsburgh for direct comparisons are listed here, namely those of *holti* and its intergrades. *cyaneus* – FRENCH GUIANA: Pied Saut 18; Cayenne 9; Mana 1. SURINAM: Powakka 1. *brevipes* – BRAZIL: Manacapurú, Amazonas 7; Caviana, Amazonas 2; Santarém, Pará 9; Obidos, Pará 3. *holti* – BRAZIL: Pau Gigante (=Ibiraçu), Espirito Santo 5 (USNM 4, CM 1); Formosa, Goiás 1 (USNM); Recife, Pernambuco 1 (USNM). *Cyaneus* × *holti* – BRAZIL: Benevides, Pará 7 (CM); Pará (=Belém), Pará 2 (USNM). *brevipes* × *holti* – BRAZIL: Villa Braga, Pará 2 (CM); Araguatins, Goiás 1 (USNM). *violaceus* – BOLIVIA: Río Surutú, Santa Cruz 7; BRAZIL: Hyutanahan, Amazonas 1.

Remarks on females: Colour differences among females of this species are difficult to assess, as wear tends to alter their colours far more than those of males. In general, *cyaneus* appears to be the darkest green dorsally of the races under consideration here, and *brevipes* the yellowest green, with *violaceus* and *holti* intermediate. A single female from Benevides, from the population identified in males as *cyaneus* × *holti*, would not be surely separable from *cyaneus*, although not as dark dorsally as most examples of that race. Some colour tendencies can be noted in the underparts. The broadest and most conspicuous white shaft streaks are found in *brevipes*, which also tends to be washed with yellow, most conspicuously on the under tail coverts. In *violaceus* and *holti* the throat is nearly solid white rather than streaked white and green as in *cyaneus* and *brevipes*. The white shaft streaks of the underparts in *violaceus* and *holti* scarcely extend posterior to the upper breast, whereas in *cyaneus* and *brevipes* they continue to the upper abdomen. The one female from Villa Braga is too dark for *brevipes* dorsally, and too long-billed for that race, but resembles *brevipes* ventrally, thus, like the male, appearing intermediate between *brevipes* and *holti*.

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Faunistic notes and further additions to the Sumatran avifauna

by D. A. Holmes

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These notes add some further species to the Sumatran avifauna and confirm other species whose presence in Sumatra has been in doubt. Most of the following records are from Lampung, the southernmost province of Sumatra (5° S, 105° E), with a few from Jambi province (2° S, 103° E).

ARDEOLA SPECIOSA

Pond Herons were seen at several localities in Lampung in 1976 at each season, and the breeding plumage in early May (buff neck, black back and cinnamon breast) confirmed the specific identification. The Javan Pond Heron has a discontinuous distribution, for example occurring in Thailand, Java and Borneo (Salomonsen 1929) but not in West Malaysia and hitherto not reliably in Sumatra (Chasen 1935).

CICONIA EPISCOPUS

Ciconia spp. are seen quite commonly in the Sumatran plains, either singly or up to 7 birds together. My own records range from the Barumon river in the north (2° N, 100° E), the Batang Hari river near Muara Tembesi in Jambi, and from several localities in Lampung. Birds examined at fairly close range in January 1976 in Jambi, and in November 1976 at Menggala in Lampung, all had grey or dark grey facial skin and bill, the bill tipped with a dark reddish tinge, black cap, and wholly white throat and neck sharply demarcated from the black breast, identifying them as White-necked Storks *Ciconia episcopus*. The habitat of open swamp, flooded grazing land, riceland, grassland and dryland crops is also typical of *episcopus*.

Chasen (1935) included Sumatra within the range of *C. episcopus* but this has been questioned by White (1974) in view of the lack of positive records. It would be expected that these storks belonged to the race *neglecta*, of Java and Wallacea, but field observations of the bill colour suggest that they are nominate *episcopus*, presently known south only to penisular Thailand. This point requires checking.

CICONIA STORMI

White (1974) notes that museum specimens exist of Storm's Storks *Ciconia stormi* from Sumatra. In November 1975 in Jambi I watched two storks, soaring over forest, which appeared from below, and against the light, to be all black except for the white under tail coverts and tail, and some white about the face. I could see no white neck as such, and there appeared to be some yellow or red about the face and bill. In October 1976 in Lampung I flushed a solitary stork from a puddle on a narrow enclosed track in dense logged primary forest, near the lower reaches of the Seputih river. The plumage of the Jambi birds identifies *stormi*, and the habitat of the Lampung bird is typical for *stormi* but would be most unusual for *episcopus*.

Thus *stormi* and *episcopus* occur together in Sumatra and *stormi* is not exclusively interposing between two distinct populations of *episcopus*, as White has suggested.

CAIRINA SCUTULATA

The White-winged Wood Duck, whose presence in Sumatra has recently been reconfirmed (Holmes 1976), appears to be quite widely distributed in suitable habitat in Lampung province (see Holmes, in press).

MACHEIRAMPHUS ALCINUS—LONCHURA PUNCTULATA nesting association

On 24 June 1976 near Ketibung in southern Lampung, a Bat Hawk was seen to alight on its nest, where it was soon joined by its partner and mating took place. The nest was a bulky affair of sticks and twigs constructed on a main branch high in an isolated forest tree left standing in recently cleared lowland terrain. A pair of Spotted Munias *Lonchura punctulata* were present and had constructed their nest of dead grasses, etc. in the base of the hawk's nest.

METOPIDIUS INDICUS

Sumatra is included within the range of the Bronze-winged Jacana by Chasen (1935), apparently on the basis of one specimen labelled Sumatra from the Wallace Collection in the British Museum (cat. Birds BM XXIV: 76). The label gives the date as 1862 but no details of locality can be traced. Medway & Wells (1976) omitted the island from its known range.

On 21 November 1976 this jacana was common at a swamp at Bujung Tenuk near Menggala in North Lampung. The following January none was present there, but they were common at another swamp nearby, where birds were in pairs and courtship was observed.

HIMANTOPUS HIMANTOPUS LEUCOCEPHALUS

Three Black-winged Stilts were feeding on the muddy foreshore at Labuhan Maringgai on Lampung's east coast on 18 January 1977. One adult bird had a pronounced black stripe on the back of the neck extending into a half collar, identifying it as the Australian subspecies *leucocephalus*, which is known to extend west into Java and southern Borneo. Chasen (1935: 35) states that "we do not admit the locality 'Sumatra' for this form", but no reason is given.

CHLIDONIAS LEUCOPTERUS

Chasen (1935) confines the distribution of the White-winged Black Tern in Sumatra to the Straits of Malacca. On 19 April 1976 this tern was common at the top of Lampung Bay (mostly in full breeding plumage). Marsh terns, assumed to be this species, were also present at a small lake inland near Rumbia on 6 October, and others in Lampung Bay in late December. These records confirm that the species migrates through and overwinters in Sumatra proper.

PTILINOPUS MELANOSPILA

A pair of Black-naped Fruit Doves was seen on 19 April 1976 on Pulau Tegel, a small island in Lampung Bay 13 km due south of Tanjung Karang. The island is mostly forested but the doves were seen in a line of bushes separating a plot of grassland from the beach.

The species ranges from Java eastwards and has not previously been recorded in Sumatra. Hoogerwerf (1969) comments that the dove was more commonly recorded in the Ujong Kulon reserve of West Java after the Second World War than before, suggesting that a small extension of population has occurred. I did not find the dove elsewhere in Lampung and possibly it is confirmed in Sumatra to some forested islands and the coastal strip close to Java.

TYTO ALBA

Barn Owls were heard at night in Tanjung Karang on 21 May 1976, and at Lake Jepara in the east of Lampung on 1 July. Confirmation came when a live bird was brought to me on 18 October, having been freshly caught on a hill close to Tanjung Karang.

This specimen is now in the Zoological Museum at Bogor, where it was kindly prepared and examined by Dr. S. Somadikarta. The 26 specimens of *T. a. javanica* in that collection, all from Java, show considerable variation in colour, but the present bird, an adult male, is very slightly darker on the upperparts. The measurements agree with those of *javanicus*, and are larger than two specimens of *sumbaensis* from Sumba in the same collection, and one specimen of *deroepstorffi* from the Southern Andaman Islands (Hume 1875).

Chasen (1935) records that this owl is "of very doubtful occurrence in Sumatra and Borneo"; however in view of its striking increase in West Malaysia (D. R. Wells) and probably also in peninsular Thailand (Holmes

& Wells 1975), it seems likely that the Barn Owl is already widespread in the open plains of Sumatra.

APUS PACIFICUS

The Pacific Swift is a passage migrant through southern Sumatra, at least on the southward migration. On 5 October, several were seen near Jambi in 1975 and in Lampung in 1976, with further records during both these months. Stragglers may overwinter as a few were seen in Lampung in mid-January. Mees (1973) was unable to find any records of this swift in Sumatra, although it appeared on all the Sumatran lists; but he commented that "*A. pacificus* is bound to be found in Sumatra sooner or later".

ALCEDO CAERULESCENS

The Small Blue Kingfisher was first recorded for Sumatra on 25 April 1976 when it was found to be common at a coralline beach backed by a narrow mangrove swamp on the west side of Lampung Bay. Subsequently birds were seen elsewhere in the bay on both sandy and muddy beaches. It is not confined to this bay, for on 19 January one was seen 3 km inland in the open swamps of the Penet river near Jepara, on the east coast. It is likely that this kingfisher is now quite widespread around the coast of Sumatra.

Most of the species discussed here have affinities with the fauna of the neighbouring island of Java. It is reasonable to assume that *A. speciosa*, *M. indicus* and *H. himantopus* are either indigenous in southern Sumatra or at least of regular occurrence there. *Tyto alba*, together with *Cisticola exilis* (Harvey & Holmes 1976), may have spread into Sumatra more recently, perhaps coinciding with widespread de-afforestation. Unfortunately I was unable to confirm records of four other species of Javanese affinity in Lampung, namely the Grey Teal *Anas gibberifrons* (near Jepara in June and January), a small cormorant, either *Phalacrocorax niger* or *P. sulcirostris* (three near Jepara in January), the Indian Hanging Lorikeet *Loriculus vernalis* (coastal coconut groves in the southeastern corner of Lampung Bay in April) and perhaps also the Scarlet-breasted Flowerpecker *Dicaem trochileum*.

I am most grateful to Dr. G. F. Mees, Dr. S. Somadikarta and Dr. D. R. Wells for their assistance in assembling the evidence for this paper, to C. M. N. White for his comments on a first draft concerning *Ciconia* sp. and to R. F. Ollington for sending me his own records of water birds in Sumatra.

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Address: The Old Rectory, Sudborough, Kettering, Northants, UK.

IN BRIEF

Co-operation invited on the protection of the Bald Ibis *Geronticus eremita*

Current distribution of the Bald Ibis *Geronticus eremita* is now limited to only two widely remote areas.

The only known breeding site of the Eastern population is located in Birecik on the Euphrates river in southeast Turkey. Disturbances to the breeding sites and the extensive use of insecticides have led to a reduction of this population from 1000 to only 39 birds in the last 25 years. Bald Ibis have been observed in Syria (where there were breeding sites until about 1920), Iraq, Saudi Arabia, Israel, Yemen, Egypt, Sudan, Ethiopia and the Somali Republic. It is possible that breeding sites exist on the Saudi Arabian Red Sea coast, in Yemen, and in the border area between Ethiopia and Sudan.

The Western population has a number of breeding sites in Morocco: I estimated there were 200–250 breeding pairs in 1975. Poaching and the cultivation of previously semi-arid feeding sites, as well as disturbance by tourists, have further decimated the remaining number of birds. In some colonies this has adversely affected the age composition of breeding pairs which, in many cases, are now so old that it must be feared that these colonies will not survive.

In order to plan and implement a World Wildlife Fund project for the protection of the last-surviving Bald Ibis, I am collecting all available information, including that of earlier years. Naturally, the assistance of ornithologists and bird observers will be invaluable to me, and they are therefore kindly requested to send me any observations of the Bald Ibis they may have. The locations of breeding sites will not be passed on by me or published in any way. If requested, any other information will also be treated confidentially and will not be released for publication.

Please write to: Mr. Udo Hirsch, Theodor-Brauer-Str. 35, 5000 Cologne 80, W. Germany, or at World Wildlife Fund, Conservation Department, CH-1110 Morges, Switzerland.

10 March 1977.

BOOKS RECEIVED

Gooders, J. 1977. *Where to Watch Birds*. Pp. 1–343. Maps. Pan Books Ltd., London £1·50. Paperback of this well-known and useful book, first published in 1967, on bird watching areas in the counties of Britain.

Gooders, J. 1977. *How to Watch Birds*. Pp. 1–155. Illustrated. Pan Books Ltd., London. 95p. Paperback of the companion volume to *Where to Watch Birds*, first published in 1975 as an elementary introduction to a serious approach to bird-watching.

Owen, M. 1977. *Wildfowl of Europe*. Pp. 1–256. 54 colour plates by Hilary Burn. 49 maps, many line drawings, diagrams. Macmillan: London. £15 (£12 until 31.xii.77).

A very successful compromise between the decorative and the plain scientific volume—tastefully and accurately illustrated in colour and black and white, with an authoritative text covering evolution, population make-up, migration, behaviour, ecology, etc., with a comprehensive, yet pleasantly discursive and commendably succinct, account of each of the 55 species of swans, geese and duck of Europe, and clear informative maps of distribution.

Serle, W., Morel, G. J. & Hartwig, W. 1977. *A Field Guide to the Birds of West Africa*. Pp. 1–351. 515 species illustrated, 335 in colour, end paper maps, hard water-resistant binding. Collins: London. £5·95.

This long-awaited and invaluable illustrated field guide by two recognised authorities covers the vast area of southern Mauritania—Chad, Senegal—Nigeria, Cameroons, Central African Republic, Gaboon and the Congo. Of the 1097 species recorded therein, 726 are included in the main text, the remainder treated more briefly as "allied species" or mentioned in the comprehensive checklist. The main systematic list includes identification, voice, distribution and habitat, and nesting (no breeding dates) of each species.

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Scientific nomenclature and the style and lay-out of papers and of References should conform with usage in this or recent issues of the *Bulletin*, unless a departure is explained and justified. Photographic illustrations, although welcome, can only be accepted if the contributor is willing to pay for their reproduction.

An author wishing to introduce a new name or describe a new form should append *nom.*, *gen.*, *sp.* or *subsp. nov.*, as appropriate, and set out the supporting evidence under the headings "Description", "Distribution", "Type", "Measurements of Type" and "Material examined", plus any others needed.

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Edited by
Dr. J. F. MONK

Volume 97 No. 3 September 1977

FORTHCOMING MEETINGS

Tuesday, 15 November 1977 at 6.30 p.m. for 7 p.m., at the Senior Common Room, South Side, Imperial College, South Kensington (entrance on the south side of Prince's Gardens, S.W.7, on the east side of Exhibition Road). Mrs. Stephanie Tyler, PH.D., on the avifauna of Ethiopia and describing especially observations in Tigre and Eritrea. Those wishing to attend should send a cheque for £3·90 a person to the Hon. Secretary with their acceptance on the enclosed slip to arrive **not later than** the first post on Thursday 10 November.

Tuesday, 17 January 1978 at 6.30 p.m. for 7 p.m. Dr. J. G. Harrison on "Indian Interlude".

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Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 97 No. 3 Published: 20 September 1977

The seven hundred and seventh Meeting of the Club was held at The Goat Tavern, 3 Stafford Street, London, W.1, on Tuesday, 19 July 1977 at 7 p.m.

Chairman: Mr. P. Hogg; present 22 members and 6 guests.

Mr. Stanley Cramp, O.B.E., spoke on the *Handbook of the Birds of Europe, the Middle East and North Africa* (*The Birds of the Western Palaearctic*). He described the editorial organization and explained the nature of the material being included, together with the layout. He displayed specimen pages and some original drawings of birds of prey for Volume II. There was an interesting discussion and Mr. Cramp invited further comments by members after the publication shortly of Volume I.

The voice of the courser *Rhinoptilus cinctus*

by R. J. Dowsett, Francoise Lemaire & R. Stjernstedt

Received 15 February 1977

Descriptions of the voice of the Three-banded (or Heuglin's) Courser *Rhinoptilus cinctus* have been published by Dowsett (1969) and Vernon (1972). Dowsett described what was apparently the alarm call of disturbed birds, and Vernon a nocturnal social call, presumably the song. Both vocalisations are basically a "wicky-wicky-wicky-wick", the song continuing for much longer than the alarm and accelerating before dying away. Both types of vocalisation have been heard frequently at night in Zambia by Dowsett, and by Stjernstedt, who has tape recorded them.

Dowsett's (1969) note was prompted by Benson & Irwin (1967), who cast doubt upon earlier published descriptions of the voice of the Three-banded Courser. Benson's misgivings arose from an unpublished tape recording by the late Myles North, made at Maungu in southeastern Kenya, and suspected by North to be of a call of the Nubian Nightjar *Caprimulgus nubicus*. It is not clear what evidence North had to support his supposition, and to Benson's ears the tape presented vocalisations very similar to those he had previously attributed to the courser while in Ethiopia; but Benson assumed he must have been in error. Vernon (1972) has now established the basic repertoire of *R. cinctus*, and it is clear that the vocalisations Benson heard in Ethiopia were indeed those of this courser. However, the identity of the bird on North's tape has remained in question.

Through the kind assistance of Stuart Keith, we have been able to examine a copy of North's tape, which North edited in 1963, but never published. It contains the songs of nine African breeding nightjars and the European *C. europaeus*. On this tape North divides the *Caprimulgus* songs into two types, the "whistling" and the "churring", though the "Nubian Nightjar" recordings do not fit into either of these categories: if they were indeed produced by a nightjar, then they are clearly anomalous, since all *Caprimulgus* songs described to date consist of an unvarying repetition of a note or phrase.

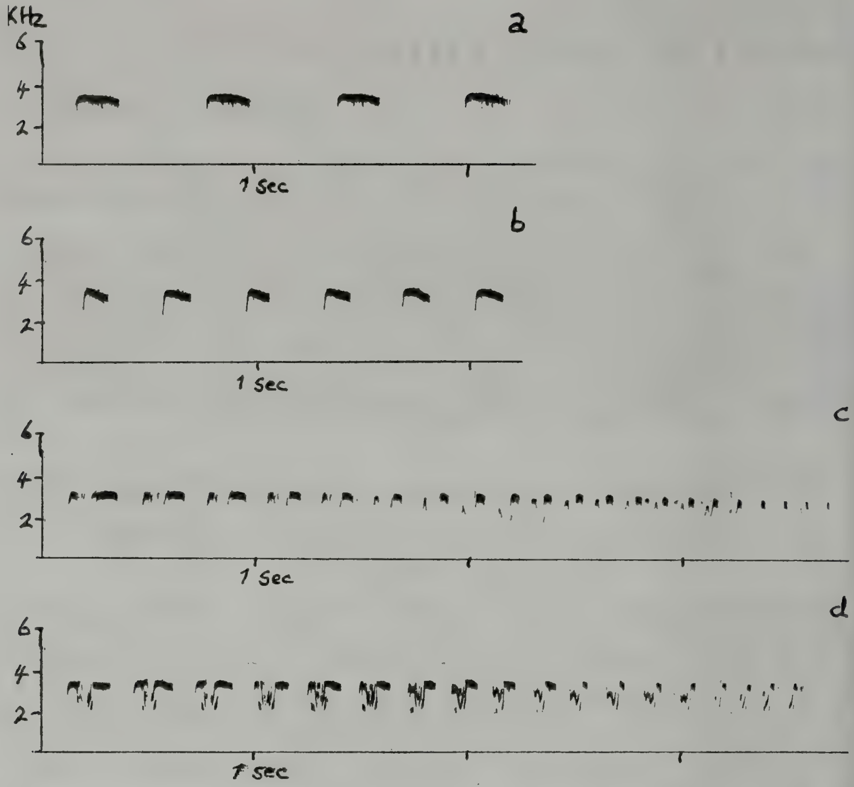

Figure 1. The voice of the courser *Rhinoptilus cinctus*. Sonograms of the social call of *Rhinoptilus cinctus:* (a) & (c) Lochinvar National Park, southern Zambia (Stjernstedt); (b) & (d) Maungu, southeastern Kenya (North). (a) & (b) are calls, (c) & (d) songs.

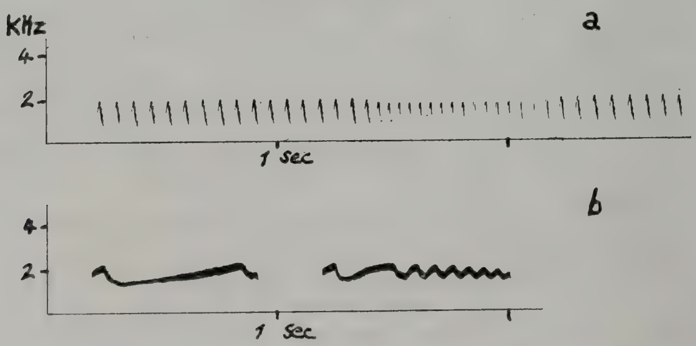

Figure 2. Sonograms of the two basic types of nightjar song: (a) churring, Moçambique Nightjar *Caprimulgus fossii*, Kalomo, southern Zambia (Stjernstedt); (b) whistling, Fiery-necked Nightjar *C. pectoralis*, Kruger Park, South Africa (Haagner 1961).

To our ears the vocalisations of North's bird are identical to those we know to be made by the Three-banded Courser. Lemaire has produced sonograms from the North tape and from a tape of undoubted Three-banded Courser made by Stjernstedt in southern Zambia. Representative extracts are presented in Figure 1. Both samples present similar repeated "kui" calls at the same pitch, with only a difference in delivery, which might be caused by different intensities of motivation. The songs are of the same length, and show the same pattern of rhythm, i.e. an accelerated repetition of one note, rising then decreasing in volume and decreasing in pitch. The two vocalisations are so clearly identical that it is difficult to believe they are not made by closely related, if not identical, species.

Lemaire has produced sonograms from tapes by Stjernstedt and by Haagner of two other nightjar songs (Fig. 2), which can be compared with the vocalisations attributed to the Nubian Nightjar by North; clearly there is no resemblance. Mackworth-Praed & Grant (1952: 671) describe the song of the Nubian Nightjar as "a liquid 'chukku-chukku-chukku' ", as described by Butler (1909: 400), who in fact placed an exclamation mark after each "chukku". He found the nightjar near the Red Sea coast, and saw or heard it every evening. It was the only nightjar he found there, and he collected a single male to confirm his identification. Although we know of no authentic tape of the Nubian Nightjar's song, there seems to be no reason to doubt Butler's version. It appears to be a churring song and quite unlike the North tape.

In short, we have no doubt that North's recording is of a Three-banded Courser, since the sonograms agree closely and the species is known to occur in southeastern Kenya where North made his recording.

Benson & Irwin (1967) emphasised the need for extra care in the identification of calling nocturnal birds. Many species of nightjar are very difficult to identify with certainty by sight at night. Moreover, several different species may congregate in an area, and so it is essential that the singing individual be identified and no other. Nightjars can often be induced to come close by playing back a tape, and it might then be possible to see clearly, capture or shoot the unidentified bird. These precautions are frequently even required to authenticate tape recordings of diurnal species, and it is unfortunate that there are a number of serious errors of identification on several commercially available records and tapes of African birds.

We are grateful to Professor J. C. Ruwet and the Laboratoire d'Ethologie et de Psychologie animale, University of Liège for facilities to produce sonograms. Mr. G. Stuart Keith kindly made available a copy of North's tape, and Mr. C. W. Benson has read this paper.

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Address: Livingstone Museum, P.O. Box 498, Livingstone, Zambia

The occurrence of the Crimson Fruitcrow *Haematoderus militaris* in Surinam

by F. Haverschmidt

Received 24 March 1977

According to the most recent classification, the family Cotingidae consists of 79 species. Because of the paucity or even the lack of recent records from their limited range, six may be in danger of extinction (Snow 1976). One of the latter is the Crimson Fruitcrow *Haematoderus militaris*. It is about the size of a Jackdaw *Corvus monedula*, and the male is almost entirely deep crimson. According to Snow (1976), it is known from a small number of places in the State of Para in northern Brazil, and was recorded in the nineteenth century and early this century in the Guianas. There are no recent records from Guyana (Snyder 1966). However, it still occurs in neighbouring Surinam (Haverschmidt 1968) where I saw it five times between 1946 and 1968:—10 August 1967, a ♂ in savanna forest a few miles west of Albina on the west bank of the Maroni River; 24 August 1961, a ♂ in high forest near Phedra on the west bank of the Surinam River, where I also saw 2 birds in high forest on 26 April 1964; 20 January 1962 a ♂ in high forest near Rama (about 10 miles south of Phedra); 4 November 1961 a ♂ in savanna forest a few miles north of Kraka in the region of the Surinam River. In this same area Miss Dr. F. Feekes, who studied for some years the behaviour of Oropendolas and Caciques in Surinam, saw a male in savanna forest near Powakka on 19 December 1973. Mr. T. H. Davis observed a bird on 4 April 1970 in the region of the Surinam River along the Brokopondo road about 100 m east of the Afobakka Highway, and again on 5 April 1973 another along the Afobakka Highway *c.* 8 km north of the Brokopondo turning (pers. comm.).

All the birds I saw were sitting on the tops of trees and I never heard them calling. I also received a ♂ (in spirit) shot about mid August 1962 at an unknown locality in high forest near the upper Coppename River. It is preserved as a skeleton in the Museum of Zoology of the University of Michigan at Ann Arbor.

It is obvious from these records that the Crimson Fruitcrow still occurs in widely separated localities in Surinam and in high forest as well as in savanna forest. The opening up of the interior of the country is being accelerated by the building of roads, and this is inevitably followed by the cutting and burning of the surrounding forest for short time agriculture. There is no cause for complacency over the future survival of this magnificent bird. Up till now it has not been recorded in any of the nature reserves which have been established during the last years.

I wish to thank Miss Feekes and Mr. Davis for permitting me to publish their observations.

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Notes on tool-using by Egyptian Vultures *Neophron percnopterus*

by Jeffery Boswall

Received 25 March 1977

It is worth placing on record that the use of stones to break open an egg of the Ostrich *Struthio camelus* was experimentally induced in a wild Egyptian Vulture *Neophron percnopterus* on the football pitch at the Mitchell-Cotts estate near Tendaho, Wollo Province, Ethiopia, on about 9 May 1970. The shell of an Ostrich egg was purchased in a local curio shop, filled with water, sealed, put out and almost immediately bombarded by a local Egyptian Vulture. No notes were made but a film showing the behaviour was taken (Fisher 1970). The sequence with the vulture bombarding the egg runs about 1½ minutes. The film implies that the behaviour was seen in the Awash National Park, Shoa Province, but in fact it was observed near Tendaho, well to the north. The behaviour of the bird appears to be similar to that described by the Lawick-Goodalls (1966, 1968).

Alcock (1970), writing on the possible origin of tool-using by the Egyptian Vulture, attributes to the Lawick-Goodalls the view that the bird's use of stones was "restricted to a limited population of vultures" and that "stone-throwing by vultures is widespread in only one area". For fear that this misquotation be perpetuated it is worth drawing attention to the fact that the Lawick-Goodalls (1968) specifically say ". . . we have not yet learned whether stone-throwing is a local custom or common to the species as a whole".

Baxter *et al.* (1969) drew attention to a nineteenth century reference to the use of tools by the Egyptian Vulture by Wood (1877), who, it seemed likely, had heard or read a first or second hand account of the behaviour. The account was clearly that of Sir James Alexander quoted by Andersson (1856). On the authority of the natives about the Orange River in southwest Africa, Sir James says that when the Ostriches leave their nests in the middle of the day "a white Egyptian Vulture may be seen soaring in mid-air, with a stone between his talons. Having surveyed the ground below him, he suddenly lets fall the stone, then follows it in rapid descent. Let the hunter run to the spot, and he will find a nest of probably a score of eggs, some of them broken by the vulture". This method must await confirmation by modern observers, but I think we can safely accept that the vultures were responsible for breaking the Ostrich eggs by one means or another. Another nineteenth century reference is that of Myers (1876). He and a companion in March 1875 concealed themselves near the nest of an Ostrich near Kassala in the Sudan, intent upon shooting the returning bird. "After an hour . . . two visitors in the form of vultures pounced down upon the nest, and, apparently quite satisfied with the certainty of a quiet feast, commenced operations by a personal hunt amongst their own feathers, then a general survey was made of the white objects before them; and finally having retired for a moment, each returned with a stone in its beak and set to work to hammer a hole through the shell of an egg".

Thus the use of tools by Egyptian Vultures is established in localities as far apart as 5,000 km in Africa. Since the birds respond so readily to eggs put out for them (Lawick-Goodalls 1966, 1968, Richard Brock (pers. comm). and this note), it would be interesting to experiment elsewhere, particularly in areas where the Ostrich is now extinct and even perhaps in places where it has never been recorded but where the vulture lives, for example in Spain.

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First record of the Knot *Calidris canutus*, and other records, from Belize (British Honduras)

by Richard Erickson

Received 26 March 1977

The distribution of the avifauna of Belize has been analysed by Russell (1964), and more recent records have been published in three subsequent papers (Barlow *et al.* 1969, 1970, 1972) and in recent Christmas Count issues of *American Birds* (Young 1973–1976b). Young's data are included here together with observations I made while visiting Belize in late December 1974, and which affect the published status of some species. Scientific nomenclature follows Morony *et al.* (1975) except in the genus *Sterna* where amended by the American Ornithologists' Union (1976).

EUDOCIMUS ALBUS *White Ibis*. Ten, including several immatures, were flushed from mangroves just south of Stann Creek on 26 December. Although found locally throughout most of Mexico and Central America, Russell lists no recent records and none from the Stann Creek District. Recorded by Young 1973–75 at Christmas at Belize City.

ANAS ACUTA *Pintail*. About 30 present on a lagoon in mangroves just south of Stann Creek on 26 December. A rare to uncommon winter visitor in Central America, Russell mentions no more than six together at one time.

SPIZAETUS TYRANNUS *Black Hawk Eagle*. An adult I saw on 29 December *c.* 3 km east of Belmopan on the Hummingbird Highway is the third record for Belize. Russell cites one collected at nearby Middlesex in February 1923, and Young records singletons at Belize City 26 Dec 1974 and at Belmopan 31 Dec 1975.

GALLINULA CHLOROPUS *Moorhen*. Eight were counted on several ponds on the Northern Highway between Orange Walk and Belize City on 23 December, and three on a pond *c.* 8 km west of Belize City on 24 December.

Russell listed several sight records from two localities, and there are now three April specimens from Rockstone Pond near Belize City (Barlow *et al.* 1969). Young gives 1973–76 Christmas sight records at Belize City, including no less than 60 on 27 Dec 1975. The species is obviously more common than once thought.

CATOPTROPHORUS SEMIPALMATUS *Willet.* One present at Belize City on 23 December, another at the mouth of Stann Creek 26 December and four there the next day. Russell lists very few records and only in February, April and August. Young records it for Christmas 1974 and 1975 in very small numbers at Belize City.

CALIDRIS CANUTUS *Knot.* One with terns and other shorebirds at the mouth of Stann Creek on 27 December is the first record for Belize. Rarely reported, almost solely as a migrant, between the United States and its major wintering grounds in South America (Bond 1971, Peterson & Chalif 1973), there are no records for the Caribbean coast of Guatemala (Land 1970) and only one for the Caribbean coast of Honduras (Monroe 1968). Its inclusion in a list of the birds of Belize by Davis (1968) is apparently an unsubstantiated assumption.

CALIDRIS ALBA *Sanderling.* Forty on the beach at Stann Creek on 27 December. Surprisingly, Russell lists only two previous records: North Two Cays in 1864 (date and number seen unknown) and four at Stann Creek 28 Mar 1956. Not uncommon throughout most of Central America (Peterson & Chalif 1973).

LARUS DELAWARENSIS *Ring-billed Gull.* A sub-adult and an immature at Belize City 23 December. Only two previous records: five at Corozal 15 Aug 1960, and a sub-adult at Belize City 22 Aug 1961 (Russell). Rarely found in the Atlantic south of the northern Gulf coast of Mexico (Petersen & Chalif 1973) and the northern West Indies (Bond 1971). There is only one record from Guatemala (Land 1970) and three from Honduras (Brown & Monroe 1974).

GELOCHELIDON NILOTICA *Gull-billed Tern.* One at Belize City 24 December. Russell lists only two records: five collected from a flock of ten at Stann Creek 28 Mar 1956 and two at Belize City 7–9 Aug 1957. Uncommon throughout much of Mexico and Central America in winter (Peterson & Chalif 1973).

STERNA CASPIA *Caspian Tern.* One present with Royal Terns *Sterna maxima* at the mouth of Stann Creek 26–27 December. Russell listed only three records, all to the north, and Young recorded two at Christmas in 1973 and three in 1974. Land (1970) shows no records from the Caribbean coast of Guatemala, and Monroe (1968) lists only three from Honduras, which are the southernmost for Central America, though they do winter on the Caribbean coast of South America (Meyer de Schauensee 1970).

STERNA SANDVICENSIS *Sandwich Tern.* Six at Belize City 24 December and 15 at the mouth of Stann Creek 27 December. Russell lists only four records, none south of Belize City or the Northern Two Cays. Barlow *et al.* (1972) reported two at the mouth of Stann Creek on 18 Dec 1970. Listed as rather rare in southeastern Mexico (Edwards 1972) and Guatemala (Land 1970), and not recorded until recently from Honduras (Brown & Monroe 1974).

Columba flavirostris *Red-billed Pigeon.* One seen at the southern outskirts of Stann Creek 26 December is the southernmost record for Belize. Russell lists one record for 19 Aug 1960 at Corozal. More recently Barlow *et al.* (1970) reported three or four at Rockstone Pond between 8 February and 25 June 1969 and Young records singles at Belize City Christmas 1973, 1975 and 1976. Occurs as far south as Costa Rica (A.O.U. 1957) but prefers more arid regions. Land (1970) mentions no records for the Caribbean slope of Guatemala, and Monroe (1968) considered them uncommon in arid interior valleys on the Caribbean slope of Honduras.

Chordeiles sp. Four nighthawks flying high over Stann Creek at dusk on 24 December and five the next evening were probably *minor*, though the Antillean form, *gaudlachii*, cannot be excluded. Russell and other authors give no winter records of either form north of South America, but Young records the "Common Nighthawk" at Belize City every Christmas 1973–76.

Chlorostilbon canivetii *Fork-tailed Emerald.* Two males and a female were seen just north of the Sittee River on the Southern Highway 26 December. Widespread throughout southern Mexico and Central America, Russell, however, has no records south of Manatee Lagoon.

Amazilia rutila *Cinnamon Hummingbird.* At least two present at Stann Creek 24–27 December. Russell and Young both give few records for mainland Belize and none from this far south. Apparently absent from the Caribbean slope of Guatemala (Land 1970) and northwestern Honduras (Monroe 1968).

Melanerpes pygmaeus *Red-vented Woodpecker.* Belize is the southern limit for this very local species. A male at Maskalls 29 December is only the fourth record. Russell lists two collected at Belize City in 1931 and Barlow *et al.* (1969) another near there in 1960 and one from Rockstone Pond in 1967.

Hirundo rustica *Swallow.* Fifteen counted on the Northern Highway between Orange Walk and Belize City on 23 December and three more at Stann Creek 27 December. Russell lists no records after 24 November but Young has Christmas records at Belize City for 1973–76. Uncommon in winter north of Panama (A.O.U. 1957).

Molothrus aeneus *Bronzed Cowbird.* About 25 birds together at Benque Viejo, near the Guatemalan border, on 28 December. Russell mentions only one, undated, record from nearby Cayo. Barlow *et al.* (1969) report one collected at Rockstone Pond 16 June 1968 and Young has recorded a few at Christmas at Belize City 1974–76. Widespread throughout much of Central America but rare in the Petén (Land 1970) and not recorded from Tikal (Smithe 1966).

Passerculus sandwichensis *Savannah Sparrow.* Seven in a grassy field at the north end of Stann Creek on 27 December. Russell considered it an occasional winter visitant and listed few records, including four in a grassy field at Stann Creek 28 Mar 1956. Monroe (1968) lists very few records for Honduras and considered it a rare winter visitant. Land (1970) shows no records for the Caribbean slope of Guatemala and Miller *et al.* (1957) listed the subspecies *savanna* as a sparse winter visitor to the Atlantic coast of Mexico, including records for Yucatan and Quintana Roo.

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On the egg of *Vidua purpurascens*

by J. F. R. Colebrook-Robjent

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Nicolai (1964) and Payne (1973) have established that the three indigobirds (genus *Vidua*, subgenus *Hypochera*) of southern Africa each mimic the calls of and parasitize a different species of *Tagonosticta* firefinch. *Vidua purpurascens* is approporiately called the Dusky Indigobird in Payne's monograph and he writes under this species (1973: 235): "All individuals that I heard and recorded in the field and also all ten males heard in captivity mimicked the calls and songs of *L. rhodopareia*". It would appear from this work, and also Friedmann (1960) and McLachlan & Liversidge (1970) that the eggs of *V. purpurascens* are undescribed, although Payne records uncalcified oviduct eggs from all the indigobirds, including a white shelled egg from *V. purpurascens* in Rhodesia, which was broken.

At 09.00 on 13 March 1977 a male Pink-backed Firefinch *Lagonosticta rhodopareia* was flushed at my feet from a typical grass domed nest just above the ground in the centre of a thick tuft of green grass. The nest was under a

Mfuti tree *Brachystegia bohmii* in a flowerbed in my garden, which borders somewhat disturbed Miombo woodland, near Choma, Zambia. The nest was not closely examined until 15 March when it was found to contain four eggs, obviously now deserted. All four eggs are very much alike and it is extremely doubtful that a parasitic egg would have been detected without careful examination, though in fact one of them was that of an indigobird, evidently *V. purpurascens*, the only species of indigobird I have noted on this farm in over five years residence. Before being blown the eggs of the parasite differed from the host's in a number of ways: the *Vidua* egg appeared to have a paler yolk and the diameter of the air space was smaller, measuring *c.* 5·5 mm against *c.* 7·5–8·0 mm for the firefinch's eggs; the *Vidua* egg was more rounded at both ends and with larger pores and also had protuberances which are lacking in the host's eggs; conversely, the eggs of the firefinch were more oval and pointed at the narrow end. On puncturing the eggs with a pin there was a marked difference in shell thickness, that of the *Vidua* requiring greater pressure to pierce it. On emptying the eggs there was found to be no discernable difference in yolk colour, the apparently paler yolk of the parasite's egg being due to its thicker shell. It must be emphasised, however, that these distinctions are extremely subtle and are likely to be overlooked by anyone not particularly looking for differences.

There are no breeding records for *V. purpurascens* in Benson *et. al.* (1971), though birds with active gonads have been collected from January to March and in May. Previously, I had found only five nests with eggs of *L. rhodopareia* since 1970, all in the Choma District, three in February, and one each in March and May; four were C/4 and one C/5, none of which were parasitized.

Egg shell weights of the Village Indigobird *V. chalybeata* are significantly heavier, on average, than those of its small host, the Red-billed Firefinch *L. senegala* (Colebrook-Robjent, in prep). In the present record the eggs of the Pink-backed Firefinch are slightly larger (certainly longer) than the egg of the Dusky Indigobird, but they weighed less than the parasitic egg, as clearly shown below. All shells were weighed on a Mettler H 10 $\mathrm{T^w}$ scale.

	Egg size (*in mm*)	*Shell weight* (*in gms*)
Vidua purpurascens:	15·4 × 12·0	·071
Lagonosticta rhodopareia:	15·8 × 11·6	·050
	15·6 × 11·9	·056
	15·6 × 11·6	·053

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Muscicapa williamsoni Deignan; a reappraisal

by D. R. Wells

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Among eastern continental forms of the Asian Brown Flycatcher *Muscicapa latirostris*, Deignan (1957) assigned tropical resident status to *M. l. siamensis* known from the highlands of northern Thailand and southern Vietnam, to an unnamed population said to resemble Palaearctic *M. l. latirostris* in peninsular Malaysia, and to a redder, ventrally streaked but clearly related bird of wide Southeast Asian distribution which he named *Muscicapa williamsoni*. This last named, new, species remained unrecognised in the field until 1 September 1966 when an immature was mist-netted in a wooded suburban garden near Malacca, peninsular Malaysia, and killed there the following day by a cat (Medway & Wells 1970). Identification was confirmed from British Museum (Natural History) paratypes by Mrs. B. P. Hall (*in litt.* 1969). In 1975 others were recognised in similar habitat near Kuala Lumpur and on Penang island, and two specimens were collected that year at Fraser's Hill (3° 43′ N), Pahang state. Further comparison of these recent acquisitions with most of Deignan's type series, including the holotype (ANSP 127964), plus additional material from the Field and American Museums, Philadelphia Academy of Natural Sciences and University of Singapore, has revealed deficiencies in the original description.

Adult. Entire upper body from forehead milk-chocolate-brown, faintly bloomed vinaceous in a fresh-plumaged recent skin, slightly rufescent in older material. In all specimens upper tail-coverts a shade more rufescent than elsewhere. Upper wing-coverts dark brown: lesser and median coverts margined chocolate-brown (distinctly rufescent in some skins), greater coverts margined a paler, buff-brown. Remiges dark brown, basal half to two-thirds of the inner webs pinkish buff; secondaries tipped and externally margined buff, most conspicuously on the proximal feathers. Rectrices dark brown finely margined chocolate-brown on the outer webs. Eye-ring pinkish buff; lores off-white, finely tipped brown; sides of head and body to flanks chocolate-brown; chin to under tail-coverts white to buff-white with medium to broad, adolescent chocolate-brown streaks over the breast. Chin and throat vary in the extent to which they are more finely streaked. Thighs and under wing-coverts pinkish buff. Feet blackish; claws dark horn; upper mandible blackish horn, lower mandible yellow suffused dark horn at the extreme tip. Iris dark brown.

TABLE 1

Measurements (mm) from *Muscicapa williamsoni* and related taxa

	M. williamsoni		*M. l. siamensis*	*M. l. latirostris*
	10 ♂♂	4 ♀♀	3 ♂♀	11 ♂ ♀
Wing-length	68–73 (71)	68–71 (69)	68–70	68–72 (70)
Tail-length	44–52 (49)	46–49 (48)	46–48	40–50 (47)
Tarsus	13–15 (14)	13–15 (14)	13–14	14–15 (14)
Bill-length	7·5–8·7 (8·1)	7·4–8·0 (7·8)	7·4–8·2	6·7–7·7 (7·4)
Bill-width	4·6–5·7 (5·2)	5·0–5·8 (5·3)	4·8–5·2	4·3–5·5 (5·2)

Notes: Wing-length is maximum chord.
Bill-length is from tip to anterior margin of nares and bill-width is across the upper mandible at the latter level.
Averages are given in brackets.

Immature. Fledgling body plumage, seen only in one specimen, is buff-spotted. After post-juvenile moult head and body are as in adults although the 1966 specimen form Malacca is more rufescent overall and has narrower streaks on the underparts. Primary coverts tipped and greater coverts edged and broadly tipped rufous-buff, palest on the inner feathers. Remiges externally margined and tipped creamy buff, finely on the primaries, broadly and conspicuously towards the inner secondaries. Rectrices finely margined rufous-buff and conspicuously tipped creamy buff.

Measurements. See Table 1.

Range. Southern Burma (Pegu district), southern Vietnam (Saigon), central and southern Thailand (Bangkok district, Prachuap Khiri Khan, Chumphon, Phangnga and Krabi provinces), peninsular Malaysia (Penang, Pahang, Selangor and Malacca states), Sumatra (Medan district and Siberut island—ZDUS collection) and Sarawak (First Division—SM collection). There are no records from the Philippines (*cf* Medway & Wells 1976); the skin from Negros island discussed by Deignan (1957) is *M. l. randi.*

Habitat and Behaviour. Specimens come from sea-level to 1300 m a.s.l., though most recent encounters in Malaysia have been in the lowlands, in wooded gardens and on the edge of disturbed forest. In my own garden near Kuala Lumpur up to two immatures were present on most days between 26 July and 6 August and an adult was seen on 22 August 1975. All frequented the interior crowns of ornamental trees (*Spondias*, *Adenanthera* and *Peltophorum*) 2–5 m from the ground and commonly foraged from perches later used by wintering *M. l. latirostris*. Prey was captured in short sallying flights with a slightly greater tendency than in *latirostris* to pick directly from bark and leaf surfaces and a lesser tendency to return to the original perch. They were intermittently attacked by resident Pied Trillers *Lalage nigra* and the leaf-searching warbler *Gerygone sulphurea*, and one noisy intraspecific confrontation and chase flight between the two immatures was seen on 6 August. Vocalizations included a brief, thin *tsi*, a buzzing *chichichichi* similar to the dry chitter of wintering *latirostris*, and soft, prolonged subsong by the adult on 22 August.

Though I could not compare them in the field directly, at fairly close range separation of both adult and young *williamsoni* from paler, greyer wintering *M. l. latirostris* would not have been difficult. The recent sightings and material similarly invalidate Vaurie's objection (in Mayr 1971; see also Amadon & DuPont 1970) that *williamsoni* has been inadequately separated from *siamensis*; rufescence in *williamsoni* is clearly neither transient nor due to foxing. Three *siamensis*, all collected more than 40 years ago, are paler, more fawn-brown above than any post-fledgling stage of *williamsoni* and barely a shade browner than contemporaneous *M. l. latirostris*; while below *siamensis* are off-white, faintly sullied fawn-grey across the breast, which is finely streaked in birds from Vietnam (ZDUS collection; USNM 278528), and not at all in one from northwest Thailand (USNM 350230). Eye-ring and under wing-coverts are whitish rather than buff, as in *latirostris*, but the bill resembles *williamsoni:* upper mandible brownish black, lower dull yellow suffused horn at the extreme tip, distinct from *latirostris* in which the apical half of the lower mandible is sharply demarcated blackish.

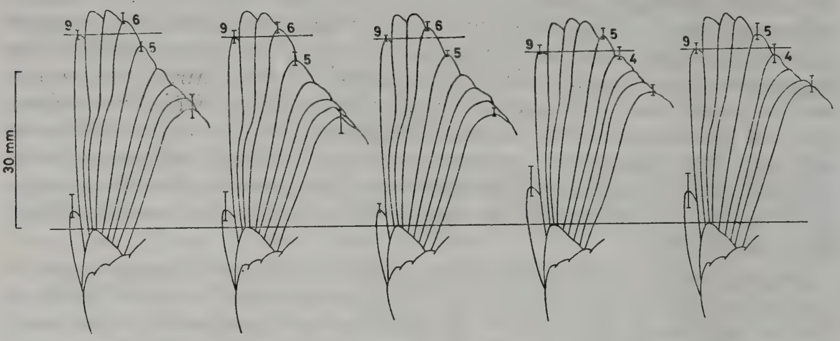
Colour differences are constant enough for acceptance of *williamsoni* as distinct, presumably within the *Musicapa latirostris* complex; but whatever its status, Deignan's argument for full species rank through sympatry in peninsular Malaysia is flimsy. Breeding by Brown Flycatchers in Malaysia was rumoured by Robinson (1928) but without supporting evidence, and there is no subsequent indication except from a bird shot by G. C. Madoc's collector in north Kedah state while it hung about a small but empty nest in a roadside rubber tree. Indentification, however, was never confirmed and the specimen is now lost. Its date, beginning of May 1941, Mr. Madoc informs me was in any case an estimate based on correspondence which he retrieved from the abandoned Raffles Museum, Singapore, after his original field-notes had been lost during the Japanese invasion. Although wintering Brown Flycatchers have been recorded as late as 27 April, and regularly forage from one or a few habitual perches, the association of bird and nest could still have been coincidence.

Deignan's own evidence for summer residents in Malaysia was provided by two skins (BMNH 86.4.1181, 1182) "of *latirostris* facies" obtained by W. R. Davison at Malacca in July 1877. By contemporary standards Davison was a meticulous recorder and lack of more precise dates on these specimens seems as suspicious as their tight cylindrical shape, typical of the trade productions for which 19th century Malacca was a well-known entrepot. Since Davison invariably made flattish skins himself (many BMNH examples extant) he could have bought these two as prepared specimens, in which case their true collection dates and even provenance are in doubt. They are slightly browner and smaller than average, due perhaps to age and shrinkage, but otherwise indistinguishable from ordinary northern migrants. No claim of sympatry between *williamsoni* and *siamensis* has ever been made; indeed, the nearest approach by *williamsoni* to the known range of *siamensis* is made by an undated specimen (BMNH 78.6.19.44) labelled "Saigon". Dran, the only Vietnamese locality for *siamensis* that I have come across, is about 260 km to the northeast, at 1000 m a.s.l. in the pine zone on the road between Phan Rung and Da Lat (Dr. B. Rollet).

Finally there is the status of *williamsoni* itself. No nest has ever been reported and the one bird showing fledgling feathers (FMNH 81161, dated 15 August from central Thailand) is in mainly post-juvenile plumage with no obvious sign of active moult. Deignan apparently never saw this specimen and based his supposition of residence on what he considered to be summer records. In effect twelve of the 17 collection dates and all but two sightings fall between 21 July and 14 September, an eight week period more evocative of passage migration, particularly as some other undoubtedly migrant passerines (including a flycatcher) are now known to reach their Southeast Asian wintering grounds by late July–early August (Medway & Wells 1976). Other dates are in November, December, January, February and March, and the longest gap in the record starts actually at the seasonal peak of nesting by insectivorous birds in Malaysia.

Further points in favour of migrant rather than resident status are that the winter dated records (November-March) come exclusively from south of latitude 10°N; that on 13 August and 8 December 1975 an adult and first-winter juvenile were caught at flood-lights with known long-distance nocturnal migrants crossing the crest of the Malayan main range at Fraser's Hill; that the shape of the wing-tip of *williamsoni* (Figure 1) much more closely resembles migratory *M. l. latirostris* than the proven tropical resident

Figure 1. Average wing-tips of *williamsoni* and four subspecies of *Muscicapa latirostris*, drawn to scale. Numbers in parentheses are sample sizes and the vertical bars represent the range of short-fall behind the wing tip of primaries 1, 4, 5, 6, 9 and 10 (descendant).



williamsoni (12) *latirostris* (11) *siamensis* (3) *segregata* (6) *randi* (8)

M. l. segregata of Sumba island, Lesser Sundas, or *M. l. randi* which Amadon & DuPont (1970) have guessed is resident in the Philippines; and finally what is known of the timing of moult. Among almost all resident insectivores, at least in Malaysia, moult occurs June–October, yet only two of 16 *williamsoni* examined show moult, including the type (an adult male) dated 3 August, from south Thailand, in which primaries 1–6 (descending) are new, 7 is growing, 8–10 are old and rectrices 2–6 are growing, while a post-juvenile male, dated 30 July, from south Burma, is growing some tail- and wing-coverts and body feathers. Most of the others have wings and tail unworn and the total freshness of the August male from Fraser's Hill suggests that, like northern *latirostris* (Stresemann & Stresemann 1974, Nisbet & Neufeldt 1975), adults normally complete all moult before they migrate, although juveniles retain their remiges and rectrices until later. The exceptional two could have suffered arrest of moult during migration, as sometimes occurs in autumn among *Lanius cristatus* and *Locustella certhiola* wintering in Malaysia (Medway & Wells 1976.)

The above arguments, of course, merely weaken certain previous assumptions, and although *williamsoni*, *siamensis* and *latirostris* form a pursuasive chromatic cline, the only positively fresh clue to relationships is a possible *williamsoni – latirostris* intergrade (SM 458) dated 16 November 1956 from Ulu Simunjan, south Sarawak (Borneo). This is an adult female, wing-length 72 mm, tail 50 mm, tarsus 14 mm, bill-length from nostrils 6·7 mm, width 5·0 mm. The wing-linings are whitish and the apical half of the lower mandible sharply demarcated blackish as in *latirostris*. The bill is also nearly 1 mm shorter, and the shortness in relation to the wing-tip of primaries 1–6 and 10 is slightly greater, than in any *williamsoni* measured. Against this several specimens of *williamsoni* are closely matched by the brown of the upperparts, flanks, sides of the breast, wings and tail, and buff edging of the greater wingcoverts and inner secondaries. Crucial areas of the face, throat and breast have unfortunately been ruined by varnish.

If, as several times suggested, *williamsoni* and *latirostris* are in fact conspecific and, as now seems likely, merely synhiemic in Southeast Asia, *williamsoni*'s unknown breeding range could be restricted. Brown Flycatchers in the Himalayas are of *latirostris* facies (Stresemann & Stresemann 1974) and these authors report, and I have re-examined, typical *latirostris* dated June, July and August, including birds in moult (USNM collection), from the mountains of Szechuan and Yunnan, southern China.

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Note: Mr. E. C. Dickinson has suggested to me (*in litt*) that by including the Brown-breasted Flycatcher *Muscicapa muttui* in the Thai fauna, Ripley (1961) and Ali & Ripley (1972) have compounded an early misidentification of *M. l. siamensis* by Deignan (1945). These taxa are unlikely to be conspecific and as Deignan later pointed out *williamsoni* and *muttui* are equally dissimilar.

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Phedina borbonica madagascariensis in the Amirantes

by C. J. Feare

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On 15 October 1976 a *Phedina* martin was discovered flying around egg collectors' huts on Desnoeufs (53° 1′ E, 6° 13′ S) in the Amirantes, Indian Ocean. The bird was caught by hand at night while it was roosting in a building, and the skin is preserved in the British Museum (Natural History). It was a ♀, with a completely ossified skull and a regressing ovary. It weighed 18 g, and while there was a little subcutaneous fat on the neck there was none elsewhere. Wing and maximum width of the upper mandible of the Desnoeufs specimen, and of other *Phedina* specimens in the BMNH collection, are given in Table 1.

TABLE 1

Measurements (mm) of *Phedina* specimens in the British Museum (Natural History)

	Locality	(*n*) *Sex*	*Mean wing length* ± *SD, range*	*Mean max. upper mandible width* ± *SD, range*
P. borbonica	Desnoeufs	1 ♀	112	12·1
P. borbonica madagascariensis	Pemba	1 ♀	115	11·9
,,	Nyassa Lake Chilwa	1 ♀	113	12·5
,,	,,	1 ♂	112	12·8
,,	Madagascar	13 ♀♀	112·5 ± 3·1, 107–119	12·5 ± 0·7, 10·8–13·5
,,	,,	12 ♂♂	115·6 ± 1·6, 113–118	12·4* ± 0·6, 11·7–13·8
,,	,,	6 unsexed	117·1 ± 4·0, 111–122	12·6 ± 1·5, 10·5–14·5
P. borbonica borbonica	Mascarenes	4 ♀♂	113·0 ± 4·4, 109–118	14·5 ± 0·3, 14·2–14·9
P. brazzae	Zaire	8 ♀♂	98·7 ±2·8, 95–102	9·2 ± 0·4, 8·7–9·9

* n = 11

The plumage resembles *P. borbonica madagascariensis* and *P. brazzae* in that the breast and belly are streaked and the under tail-coverts white with dark feather shafts. The streaking is much more pronounced than in *P. b. borbonica*, in which the under tail-coverts are largely brown with white feather edgings. These plumage charactersitics, combined with the wing and bill measurements, identify the Desnoeufs specimen as *P. b. madagascariensis.*

This is the first occurrence of the Madagascar Martin to the northeast of its breeding range in Madagascar. Elsewhere it has been recorded in two areas in East Africa in June–July (Benson 1944, Clancey *et al.* 1969), on Pemba between September and March (see Clancey *et al.* 1969) and on Aldabra in November (Benson & Penny 1971). According to Rand (1936), *P. b. madagascariensis* breeds in October and November, but possibly also in other months. The records on western Indian Ocean islands appear, therefore, to fall within the known breeding season on Madagascar. At present there is too little information to indicate whether *P. b. madagascariensis* regularly migrates to East Africa out of the breeding season. For comparison, some individuals of the Malagassy breeding *Eurystomas g. glaucurus*, which does do so (Moreau 1966), on their return migration appear to be blown off course and settle temporarily on various western Indian Ocean islands (see Benson (1960) for the Comores, Benson & Penny (1971) and Frith (1976) for the Aldabra group, Feare (1975) for the Seychelles, and I have an unpublished sight record on Providence Island on 27 October 1976). In a like way, any migrating *P. b. madagascariensis* may be blown off course: the present record followed the passage of cyclone Agatha through the Amirantes during 10–13 October 1976.

I am grateful to the National Geographic Society for their grant which enabled me to visit the Amirantes and to Mr. I. C. J. Galbraith, British Museum (Natural History), for permission to examine specimens.

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Normal and aberrant specimens of the Spotted-backed Weaver *Ploceus cucullatus*

by D. B. Hanmer & C. W. Benson

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The following observations are confined to Rhodesia, Zambia and Malawi, and cover only *Ploceus cucullatus nigriceps* and *P. c. paroptus*. They are based on an examination by D. B. H. of some 800 specimens handled by her in the course of netting operations since 1973 at Nchalo, lower Shire Valley, Malawi, 16° 15′ S, 34° 55′ E, 200 feet a.s.l.; and by C. W. B. of 377 specimens preserved in the National Museum of Rhodesia (NMR), Bulawayo, and 40 in the British Museum (Natural History) (BMNH), Tring. Following Clancey (1970), *paroptus* is recognised as separable from *nigriceps*, mainly on account of the somewhat richer colour of the male in breeding dress. In the region covered, *paroptus* replaces *nigriceps* in the Zambezi Valley below the Victoria Falls and in eastern Zambia generally, and in Malawi throughout.

The immediately following remarks on plumage and soft parts are mainly a preliminary for the purpose of the present paper: variation—in sex, season and age—is complex, and requires further study.

Adult plumage. The breeding dress of the adult male is well known, and needs no description. Although egg-laying is mostly in September/April (see Benson *et al.* 1964: 97), breeding dress is assumed sometimes as early as July, and is entirely absent perhaps only in May and June. In the off-season, in both sexes the crown is olive streaked dusky; the rest of the upperparts ashy grey, the mantle and scapulars streaked dusky. Below, the chin and throat are pale yellow, breast and flanks buffy, and the rest of the underparts white. In breeding dress the adult female is predominantly olive above, brightest on the crown, with the crown, mantle and scapulars streaked dusky, the mantle often with some admixture of ashy grey. The underparts are uniform bright yellow, less orange in tone than in the breeding male.

Immature plumage. At what age the breeding dress is first assumed is still uncertain, but in both sexes the not fully adult bird resembles the off-season adult, except that in the earliest stages the mantle and scapulars are olivaceous brown rather than the adult ashy grey and the underparts as a whole are washed dull yellowish, not white. This was well evident in 9 out of 34 NMR specimens collected by H. D. Jackson on the Muneni River, near Umtali, 18° 59′ S, 32° 41′ E, 25 November/5 December 1971: all nine had skull "soft". Two similarly coloured NMR specimens were one from Humani Ranch, 20° 31′ S, 32° 16′ E, 10 March 1972 (No. 75817), and one from Mweru Marsh, 8° 28′ S, 32° 16′ E, 27 May 1955 (No. 22045); the former not yet fully grown, wing only 70 mm and the crown uniform with the mantle, instead of a contrasting olive. That so few brown-mantled specimens were found in the large NMR series suggests that this stage of immature plumage occurs only for a short time, perhaps not more than two months. Mackworth-Praed & Grant (1955: 891; 1963: 566) state that the young of *nigriceps* is "similar" to the adult female in non-breeding dress, but has the whole upperside yellow-green; mantle and scapulars streaked with dusky", presumably basing this on the 180 BMNH specimens. Among these, which embrace the whole range of *nigriceps* and *paroptus*, only three were found pencilled in Captain Grant's handwriting as "young": one, from the Athi River, Kenya, appears to be one of the xanthochroic examples which they mention, and is discussed below; another, from Beira, Mozambique, 4 December 1906, appears to be a female in breeding dress; and the third, from Port Herald (now Nsanje), Malawi, 6 June 1924, is like 11 NMR specimens discussed above, albeit slightly more olive on the mantle. No other specimen of an apparently very young bird could be found in Tring. The shorter statement by Mackworth-Praed & Grant (1973: 615) that the "young bird is very similar to the adult female in non-breeding dress" seems more strictly correct.

Soft parts. Broadly there appear to be three main colour stages in the soft parts: 1) young, perhaps always less than six months old; 2) intermediate; 3) adult, capable of breeding, perhaps always more than 24 months old.

Bill. Maxilla sepia, mandible whitish horn in stage 1 and stage 2, although in December/February the maxilla is blackish rather than sepia in some males which show no other sign of breeding dress, excepting four with black spotting (D. B. H.), referred to again below; darker in stage 3, in breeding male wholly black, not quite so intense in breeding female, keel of mandible tending to whitish horn. There is a tubercle on each side of the base (not apparent in museum specimens and unrecorded by any collector), relatively large, yellowish white at start of stage 1, diminishing and changing to brown (sometimes blackish in males) in stage 2 and black in stage 3.

Eye. Brown ("grey" on some collectors' labels) in stage 1, changing to reddish brown in stage 2 and red in stage 3, with possibly some change to brownish red in the off-season (D. B. H.). Thus in February 1977 some females handled, in full breeding dress and with the oviduct visible on external examination (indicating that they had laid), had eyes brownish-red. No such change was noted in the males, but they were still nest-building, and the change might occur later.

Legs and feet. Collectors' labels provide little data, but D. B. H. found them grey or grey-brown in stage 1, pinkish-brown in stage 2, bright pink in stage 3, perhaps more brownish in off-season.

It should be stressed that the ages at which the changes in plumage and colour of the soft parts occur require further investigation.

Pneumatization. This may be quite slow: there is a BMNH specimen (No. 1936.4.13.368) collected by Rear-Admiral H. Lynes on 8 August 1933 at *c.*

10° 55′ S, 26° 48′ E, not far north of the Zambia/Zaire boundary, marked "juv. ♂, [wing 86 mm] testes quite clear. *All* skull clear, do weavers' skulls take a long time to fully ossify?". The specimen must have been from an egg laid not later than April (the normal end of the laying season), and already has the adult ashy grey (lacking any olivaceous brown) on the mantle and scapulars, and the yellow on the underparts confined almost entirely to the chin and throat. There is no record of the colour of the soft parts, but the maxilla appears dark sepia, the mandible whitish horn.

Measurements. The male averages larger and heavier than the female (Table 1).

TABLE 1

Measurements (mm) and weights (g) of *Ploceus cucullatus* in whole or partial breeding dress

	Wing		*Weight*	
	Av.	*Range*	*Av.*	*Range*
Malawi				
229♂♂ (live—D.B.H.)	87·1	83 — 91	37·7	33 — 46
134♀♀ (live—D.B.H.)	80·0	75 — 85	31·4	26 — 37
22♂♂ (skins)	86·2	83 — 88	—	—
2♀♀ (skins)	—	77, 81	—	—
Rhodesia				
107♂♂ (skins)	87·5	82 — 91	—	—
43♂♂ (live)	—	—	36·7	31·3—48·3
63♀♀ (skins)	80·4	77 — 86	—	—
36♀♀ (live)	—	—	31·6	26·8—39·3
Zambia				
51♂♂ (skins)	86·8	83 — 92	—	—
17♀♀ (skins)	79·6	77 — 83	—	—

Aberrant plumage.

(a) The most remarkable are two found by D. B. H. at Nchalo. The first is dated 2 January 1976, and is now in the Museum of Malawi, Blantyre. Its wing when first examined, measured 79 mm (D. B. H.) and 77 mm on 14 November 1976, after drying out (C. W. B.), weight 26 g, no wing moult evident. On dissection it proved to be a female holding minute oocytes (detected with a lens), with no indication from the oviduct that any egg had ever been laid, yet a fully pneumatized skull. The bill was horn-coloured, culmen darker; but anomalously in view of the state of the "adult" skull, the tubercles at the base of the bill were still large and yellowish white, and the eye reddish brown, not merely the brown of the intermediate growth stage. However, the most remarkable feature of this specimen, which was compared by C. W. B. with material of *paroptus* in the National Museum of Kenya, Nairobi, is the presence of male-like fresh breeding dress on all but the crown. The main plumage features are:—(1) crown olive, worn; (2) sides of head likewise, but some replacement by black; (3) nape black-and-yellow, fresh; (4) mantle and scapulars ashy grey, streaked dusky, worn, but some replacement with black-and-yellow, fresh, on one side; (5) underparts orange-yellow, with some black on throat and centre of chest, and bright saffron on sides of chest. On 9 January 1976 a similar specimen was found, though the anomalies were less pronounced. It too was smaller and lighter than any true male, wing 80 mm, weight 31 g. Unfortunately, before it could be skinned, it was eaten by a captive owl.

(b) In NMR C. W. B. found three specimens taken in the breeding season in adult non-breeding dress but with slight signs of breeding plumage:—(1) No. 77343, ♂, Muneni River, near Umtali (see above), 21 October 1971, collector H. D. Jackson, has some yellow (same tone as on chin and throat of off-season birds) on underparts as a whole, but more significantly most feathers of chin and throat with a dusky spot towards apex, wing 87 mm, testes $2\frac{1}{2}$ x 2, $2\frac{1}{2}$ x $1\frac{1}{2}$ mm (thus not near breeding). The skull is labelled "hard", eye "brown", bill "dusky, flesh basally", but the bill now is very dark sepia, the keel of the mandible whitish horn. (2) No. 77340, ♂, locality and collector as for 77343, date 25 November 1971, has yellow on the under parts as in 77343, but more extensive, some feathers on centre of throat black at base, some on sides of throat striated with black, wing 86 mm, testes "small". The skull is labelled "hard", eye "red", bill "black/grey", but the maxilla is now blackish sepia, the mandible whitish horn. (3) No. 3503, unsexed, Mpika, Zambia, 18 January 1950, collector W. E. Poles, underparts as in 77340, most feathers on lower throat with conspicuous black at base, likewise on sides of chest, unsexed (gonads recorded as very small), but wing 89 mm, so presumably a male. Skull fully pneumatized, eye "red", bill now like that of 77340.

(c) D. B. H. found four immature males at Nchalo in 1977, showing no sign of a breeding dress except for odd black spots on the face and throat (in the first on the chin only), thus akin in this respect to the three preceding:—(1) 27 January, eye dull orange, bill dark horn, pale below, testes $1\frac{1}{2}$ mm, skull three-quarters pneumatized; (2) 16 February, eye brown-orange, bill black, slightly paler below, testes 4 mm, skull one fifth pneumatized; (3, 4) 17, 21 February, both with eye orange-red and bill as for last: not dissected, but wings 85, 88 mm.

(d) Mackworth-Praed & Grant (1955: 891; 1963: 566) mention two xanthochroic examples, and although from outside our area there are two such specimens in BMNH worth mention. One is from Kilosa, Tanzania, 2 December 1920, unsexed, the other from the Athi River, Kenya, 22 August 1900, sexed male. Both have wing 74 mm, which is more compatible with females. They are a much brighter olive on the upperparts as a whole than in the female in breeding dress, the ashy streaking much less conspicuous. The underparts appear normal, the Athi specimen in off-season dress, the other with yellow more extensive. Neither bears any record of the colour of the soft parts, although both appear to have had maxilla sepia, mandible whitish horn.

Frith (1967: 176–177) has discussed aberrations in two other ploceids, the Aldabran Fody *Foudia eminentissima aldabrana* and the Madagascar Fody *F. madagascariensis*. In these, however, it was a question of all the red areas such as are found in the breeding male being replaced by golden yellow, and the bill brown or horn coloured instead of black. None of the specimens was sexed certainly as a male, and four carefully examined showed no trace of any sexual organs. These cases are not comparable to any of those in *Ploceus cucullatus*. Our seven aberrant specimens under (b) and (c) above, seem likely to have been not fully adult, but with precocious signs of the breeding dress in variable amounts. Although not recorded previously, this may be a not infrequent phenomenon; but no explanation can be offered for the two specimens under (a) which are much the most anomalous and remarkable, and we can do no more than draw attention to them.

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A third locality in Colombia for the Dusky-chested Flycatcher *Tyrrannopsis luteiventris*

by J. V. Remsen, Jr.

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The Dusky-chested Flycatcher *Tyrannopsis luteiventris* has only been recorded from two localities in Colombia:—upper Río Putumayo (in Meyer de Schauensee 1950) and Mitú, Vaupés (Olivares 1964), and indeed is known from only a few other localities in the whole of South America, namely one or two records each from Ecuador, Perú, and Venezuela and several from Surinam and Brasil (Blake 1961, Meyer de Schauensee 1966). Virtually nothing has been published concerning its natural history, and it is perhaps the most poorly known and rarest of the multigeneric assemblage of medium and large sized, yellow-bellied Tyrannids.

On 25 June 1975 I observed two individuals of this species feeding in the tops of small trees about 10 m in height along the edge of a stream about 15 m wide in seasonally flooded "varzea" forest approximately 1 km from its junction with the Amazon River. This stream, locally called Quebrada "Guacarí" but probably not appearing on any published maps, is about 45 km northwest of Leticia, Amazonas, Colombia. A male was collected (Museum of Vertebrate Zoology, Berkeley, California No. 164046), largest testis 2 mm, weight 20·5 g, of the nominate race *luteiventris*. Stomach contents revealed it had been feeding on a hard fruit, cylindrical in shape (6 x 3 x 3 mm) and bright orange in colour. Both birds called persistently, giving a very nasal "chew" note.

On 19 July 1975 two individuals were seen in the middle strata about 20 m above ground at the edge of "tierra firma" forest on the outskirts of Leticia. Again the nasal "chew" call was heard several times. They were sallying from small, leafless branches to nearby foliage, probably for insects (no fruit visible). Available for direct comparison at this spot were both *Myiozetetes granadensis* and *M. similis*, which form useful comparison with *luteiventris* in appearance, body proportions and overall behaviour.

On 23 July 1975 two more *luteiventris* were studied at very close range (7 m) for ten minutes in a small agricultural clearing at the edge of "tierra firma" forest near Pobre Alegre, a small village on the lower Río Javarí, Loreto, Perú. They frequently gave the nasal "chew" call from the tops of banana plants about 3 m above the ground, and showed little fear of humans. No foraging was observed; these birds spent the entire time calling back and forth to one another.

Although direct evidence for breeding was lacking, that all three observations were of birds which definitely appeared paired implies residency in the immediate vicinity rather than migrant status. All three observations were from forest edge situations, and if indeed this species proves to prefer forest edge habitats, *luteiventris* will be one of the few examples of a truly rare species to do so, since most rare or locally distributed birds in the Amazon Basin inhabit forest interiors.

T. luteiventris perches in rather exposed locations, has a distinctive and persistent call, and is readily distinguished in the field from the similar *Myiozetetes* species. Thus with only three records in nine months of daily field work, this species is certainly rare near Leticia and would not be likely to be detected on brief collecting trips. It remains to be seen whether this species' distribution is truly discontinuous or whether the gaps will be filled by more intensive field work.

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Identity of pelicans on St. Joseph Atoll, Amirantes

by D. R. Stoddart

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J. S. Gardiner reported the presence of a colony of pelicans during a visit to St. Joseph Atoll (5° 25′ S, 53° 20′ E), Amirante Islands, western Indian Ocean on 10–11 October 1905. Gadow & Gardiner (1907: 110) named the species as the Dalmatian Pelican *Pelecanus crispus*, and though the colony has not been seen since, and was indeed extinct at the time of a visit by D. Vesey-FitzGerald in the 1930s, this species has been recorded as present on the basis of Gardiner's identification by Betts (1940: 504) and Watson *et al.* (1963: 180).

Gardiner & Cooper (1907: 154) state: "St. Joseph is covered with tall coconuts, some of which were weighted down and killed by the large nests of *Pelecanus crispus*, of which there was a numerous colony. How far this bird is a wanderer we do not know". According to Gadow & Gardiner (1907: 110) "these large birds were found breeding in a colony in the coconut and other large trees of the eastern island of S. Joseph Atoll, Amirante Group. Young birds were seen in October 1905". *P. crispus* is, however, a ground-nesting species, and the nearest known breeding locality is at the head of the Persian Gulf, where it formerly bred (Vaurie 1965: 43). In terms of range a more probable candidate is the White Pelican *P. onocrotalus*, but this too is a ground-nesting species.

The identity of the St. Joseph pelican can, however, be resolved, as W. L. Abbott collected a specimen, hitherto overlooked, on 29 August 1892. Ridgway (1895: 516) names it as a Pink-backed Pelican *P. rufescens*, and refers to "a small colony—perhaps one hundred individuals . . . the only colony of pelicans in these seas". Dr. G. E. Watson has kindly located Abbott's specimen in the National Museum of Natural History, Washington, and states that it is definitely *rufescens* in juvenile plumage, with the back of neck, mantle, and upper surface of wings dark greyish brown, and the lower back and rump pure white. Measurements are: wing 463 mm, culmen from skull 315 mm, exposed culmen 295 mm.

There is a record of this species in the Dahlak Archipelago, Red Sea (Mackworth-Praed & Grant 1952: 34), and several from Madagascar (Milon *et al.* 1973: 31), including one of a colony at Antsalova (18° 40′ S, 44° 37′ E), but otherwise no records outside mainland Africa: its occurence on an oceanic island is thus quite exceptional. The only other report of pelicans in the western Indian Ocean is the unconfirmed hearsay report of two individuals of *P. crispus* on Bijoutier, Alphonse, by Loustau-Lalanne (1963: 23). Watson *et al.* (1963: 180) suggest that pelicans were introduced to St. Joseph but this seems very unlikely. The colony was probably present as early as 1882, when H.M.S. *Alert* charted a Pelican Island on the atoll, but apart from the observations quoted above and its presumed extinction between 1905 and the 1930s, there are no further records of the colony.

Acknowledgement: I am grateful to Dr. G. E. Watson for kindly locating and reporting on Abbott's specimen, and to C. W. Benson for much advice and for reading a draft of this note.

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Weights of West African Savanna birds

by P. W. Greig-Smith & N. C. Davidson

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During studies of the behaviour and ecology of birds in Mole National Park, Ghana, in 1974 and 1975, we weighed 1187 birds of 111 species, including several species for which there is little other such information (see e.g. Fry 1970, Karr 1976).

Birds were mist-netted in a variety of habitats in the vicinity of Samole (9° 15′ N, 1° 51′ W) 8 July – 27 Aug 1974, 7 July – 2 Sep 1975, and 2 Nov – 2 Dec 1975. Weights were measured with Pesola spring balances, and are accurate to 0·1 g (weights less than 40 g), to 0·5 g (40 – 80 g), or to 1·0 g (over 80 g). The bird communities of the area are described by Greig-Smith (1976b).

W. G. Harvey *et al.* (in Fry 1970) collected weights from Mole National Park in the wet season of 1968, and their samples agree closely with our means and ranges for most species represented by large samples (e.g. *Merops bulocki*, *Pycnonotus barbatus*, *Serinus mozambicus*, *Estrilda melpoda*). This suggests that the samples are truly representative, and where they differ from other published weights of the same species there may be some biological significance. We have commented on some such cases below, and where possible we have compared male against female, and wet against dry season weights, using Student's t-test. These weights will be used in an investigation of ecological segregation between savanna species (Greig-Smith & Davidson, in prep.).

In the following list, each species name is followed in brackets by the number of birds weighed in each season. Wet season weights (July – Sep) are given separately from early dry season weights (Nov – Dec), which are prefixed by D. For most samples of 5 birds or fewer, weights are listed individually; for larger samples, the mean ± one standard deviation is followed in brackets by the range. Where sexes and ages were distinguished on plumage characteristics, they have been listed separately. The sequence and nomenclature of species follow White (1960–65).

Butorides striatus (1): 193
Porphyrio alleni (1): 140
Streptopelia senegalensis (1): 98
Turtur afer (8): 66·5 ± 5·7 (57·5 – 74·0); D(2): 62·0, 62·5
Turtur abyssinicus (10): 59·0 ± 3·9 (55·0 – 66·5); D(2): 55·0, 57·0
Treron australis (1): 239
Treron waalia (1): 268
Clamator levaillanti (1): 122
Chrysococcyx klaas (2): ♂♂ 23·0, 23·0
Chrysococcyx caprius (2): ♂♂ 26·2, 28·6
Glaucidium perlatum (1): juv 61·0
Caprimulgus climacurus (4): ♂ 43·5, ♀♀ 36·3, 39·0, unsexed 38·5
Ceryle maxima (1): 282; D(1): 305
Alcedo quadribrachys (7): 35·6 ± 2·3 (33·0 – 39·5); D(2): 36·5, 37·0. Britton & Dowsett (1969) list 6 birds from Zambia with a mean weight of 31·6.
Alcedo cristata (4): 11·0, 11·5, 11·7, 12·5; D(1): 13·5. The weights of 9 birds from Mole (Fry 1970) are slightly higher (mean = 12·9), and birds in East and Southern Africa are much heavier—means = 15·8 (Britton 1970), 15·5 (Britton & Dowsett 1969), 14·9 (one bird, Liversidge 1968).

Ceyx picta (33): 13 adults, 11·4 ± 1·1 (9·6 – 13·5), 10 juvs, 10·6 ± 0·6 (9·6 – 11·2), 10 unaged, 10·6 ± 0·8 (9·0 – 11·7); D(5): 11·4 ± 0·7 (10·4 – 12·4). The difference between wet season adults and juveniles is close to significant (P approx. equal to 0·05), though both are lighter than wet season birds in Zambia (mean = 14·3, Britton & Dowsett 1969).

Halcyon senegalensis (2): 54·0, 55·4

Halcyon malimbica (11): 90·8 ± 8·0 (79 – 105); D(1): 103

Halcyon chelicuti (2): 32·5, 35·0. Dean (1974) quotes weights of 41 and 43 g for *H. chelicuti* in Angola.

Halcyon leucocephala D(1): 44·0

Merops pusillus (2): 11·6, 13·2

Merops bulocki (52): 22·6 ± 1·5 (19·0 – 26·4); D(4): 19·9, 21·6, 23·0, 23·5

Merops hirundineus (11): 9 ads 21·8 ± 1·5 (19·5 – 23·6), juvs 19·5, 20·5

Phoeniculus purpureus (7): ♂♂ 76·0, 90, 96, 99, ♀♀ 56·0, 63·5, juv 59·5

Phoeniculus aterrimus (1): ♂ 22·8

Lybius dubius (16): 8 ♂♂ 92·0 ± 8·5 (81 – 105), 5 ♀♀ 87·6 ± 6·9 (80 – 98), unsexed 94, 95, 99; D(2): ♂♂ 85, 85. Males *vs* females, $P > 0{\cdot}30$

Pogoniulus chrysoconus (2): 9·6, 9·8. The mean of 5 Zambian birds (Britton & Dowsett 1969) is 12·7

Indicator indictaor (3): ads 54·0, 50·5, juv 37·0

Indicator minor (2): 26·5, 32·0

Campethera punctuligera (2): ♂ 67, ♀ 71

Campethera abingoni D(1): 55·0

Mesopicos goertae (5): ♂♂ 50·0, 52·0, ♀ 45·5, unsexed, 49·0, 52·5

Psalidoprocne obscura (1): 10·0

Prionops plumata (18): 12 ads, 43·0 ± 3·0 (40·0 – 48·5), 6 juvs 39·8 ± 2·0 (37·0 – 42·0). Adults *vs* juveniles, $P < 0{\cdot}05$. Britton & Dowsett (1969) found a mean of 32·4 ± 1·9 for 21 Zambian birds. See Greig-Smith (1976a) for possible sex differences of the Mole birds.

Nilaus afer (3): ♂ 19·9, unsexed 17·3, 18·9

Dryoscopus gambensis (5): ♂♂ 31·1, 36·0, 39·0, ♀♀ 31·0, 34·4; D(1): ♀ 35·5

Tchagra minuta (2): ♂ 30·0, ♀ 32·2

Tchagra senegala (1): 62·0

Laniarius barbarus (11): 47·1 ± 3·4 (43·0 – 52·0); D(1): 46·0

Malaconotus sulfureopectus (6): ♂♂ 31·0, 34·0, ♀♀ 28·0, 29·5, unsexed, 29·6, 30·0

Corvinella corvina (1): juv 66·5

Dicrurus ludwigii (3): 24·5, 27·0, 28·5. Karr (1976) gives a weight of 46 g for a bird in Liberia.

Dicrurus adsimilis (1): 34·5

Campephaga phoenicea (6): ad ♂ 28·1, imm ♂ 27·5, ♀♀ 25·5, 27·5, 29·0, 30·0; D (1): ♀ 35·5

Pycnonotus barbatus (44): 35·9 ± 1·9 (30·8 – 42·4); D(1): 40·5

Chlorocichla flavicollis (2): 45·5, 55·0

Cercomela familiaris (2): 15·1, 15·6

Cossypha albicapilla (9): 59·2 ± 4·1 (53·0 – 65·0); D(2): 53·0, 65·0

Cossypha niveicapilla (14): 33·8 ± 3·1 (27·3 – 38·5); D(2): 31·5, 39·5

Turdus pelios (11): 64·9 ± 3·2 (57·0 – 69·5); D(5): 68·8 ± 2·6 (65·0 – 71·5). Dry season *vs* wet season, $P < 0{\cdot}05$. Day (1975) found a mean of 78·6 ± 1·2 for 17 birds in South Africa.

Turdoides plebejus (4): 61·0, 66·5, 67·0, 71·0

Turdoides reinwardii (4): 78·0, 79·0, 86, 91; D(2): 75·0, 83

Sphenoaeacus mentalis (9): 33·5 ± 1·8 (30·6 – 37·0)

Phylloscopus trochilus D(2): 7·4, 7·9

Cisticola erythrops (9): ♀♀ 12·1, 13·0, 14·1, unsexed 12·7, 13·0, 13·0, 13·2, 15·6, juv 12·7

Cisticola lateralis (5): 17·0, 18·0, 18·3, 19·0, 19·6. The mean for 9 Mole birds in Fry (1970) is 16·4 g.

Cisticola galactotes (6): ♂♂ 17·5, 19·2, ♀ 18·5, unsexed 16·6, 17·1, 17·1. The mean of 4 Mole birds (Fry 1970) is 16·2 g.

Cisticola ruficeps (1): 9·8

Cisticola rufa/brachyptera (4): 7·4, 7·5, 7·9, 9·1; D(3): 6·0, 6·5, 6·9

Prinia erythroptera (3): 5·6, 8·3, 14·5

Prinia subflava (5): 7·5, 7·5, 7·6, 7·7, 8·3. The mean of 6 Zambian birds (Britton & Dowsett 1970) is 10·4 g.

Hypergerus atriceps (7): 28·9 ± 2·2 (26·4 – 31·5)

Camaroptera brachyura (18): 16 ads 10·5 ± 1·0 (8·9 – 13·0), juvs, 8·5, 10·5

Eremomela pusilla (26): 6·1 ± 0·2 (5·0 – 8·4); D(5): 6·1 ± 0·2 (6·0 – 6·4)

Sylvietta brachyura (6): 8·0 ± 0·4 (7·4 – 8·4)

Muscicapa aquatica (2): 10·2, 11·0

Myioparus plumbeus (4): 11·5, 12·0, 12·3, 13·0

Ficedula hypoleuca D(2): ♀♀ 11·6, 11·8

Melaenornis edolioides (9): 30·8 ± 1·7 (28·1 – 33·9). Karr (1976) lists a bird from Ghana weighing 59·5 g.

Bradornis pallidus (6): ads 19·7, 20·3, 22·5, 23·5, juvs 18·5, 22·0

Hyliota flavigaster (2): ♀ 12·2, juv 11·4

Batis senegalensis (15): 6 ♂♂ 9·4 ± 0·6 (8·6 – 10·2), 8 ♀♀ 9·3 ± 1·1 (8·0 – 11·4), unsexed 9·0; D(3): ♂ 9·3, ♀♀ 9·0, 9·0. Males *vs* females, $P > 0{\cdot}50$. Fry (1970) found a significant difference, males 8% heavier than females.

Platysteira cyanea (13): 4 ♂♂ 14·3 ± 0·6 (13·5 – 15·0), 8 ♀♀ 13·0 ± 0·9 (11·6 – 14·5), juv 11·7; D(1): ♂ 15·0. Males *vs* females, $P < 0{\cdot}05$.

Trochocerus longicauda (6): ads 8·2, 8·5, 8·8, 9·3, 9·5, fledgling 6·7, D(1): 6·3

Terpsiphone viridis (10): ♂♂ 11·3, 15·0, 16·0, ♀♀ 14·5, 14·7, 14·9, 15·6, unsexed 12·3, 14·5, juv 13·0; D(7): unsexed 14·4 ± 1·5 (12·8 – 17·0). Wet season adults (mean = 14·3 ± 1·3) *vs* dry season adults, $P > 0{\cdot}50$.

Parus leucomelas (10): 16·1 ± 1·2 (13·1 – 17·5)

Nectarinia verticalis (1): ♂ 13·2; D(1): ♂ 11·8

Nectarinia senegalensis (26): 16 ♂♂ 10·3 ± 0·6 (9·6 – 11·9), 7 ♀♀ 8·4 ± 0·9 (6·8 – 9·8), juvs 9·4, 10·1, 10·2. Males are 23% heavier than females ($P < 0{\cdot}01$); Fry (1970) found a 17% difference.

Nectarinia cuprea (10): 5 ♂♂ 7·2 ± 0·3 (6·8 – 7·6), 5 ♀♀ 6·1 ± 0·5 (5·5 – 6·8); D(1): ♀ 6·6. Males are 18% heavier than females ($P < 0{\cdot}01$); Fry (1970) found a 13% difference.

Nectarinia pulchella (19): 12 ♂♂ 7·1 ± 1·1 (5·6 – 10·2), 7 ♀♀ 6·6 ± 0·5 (5·6 – 7·3). The male *vs* female difference (8%) is not significant ($P > 0{\cdot}20$); Fry (1970) found a 12% difference.

Zosterops senegalensis (2): 8·1, 8·7

Emberiza cabanisi (3): ♂ 24·0, ♀♀ 24·1, 25·5

Emberiza forbesi (4): 14·5, 14·9, 16·0, 16·0

Emberiza tahapisi D(1): 12·8

Serinus mozambicus (81): 40 ♂♂ 10·8 ± 1·7 (9·5 – 12·5), 31 ♀♀ 10·4 ± 1·0 (9·1 – 13·5), 7 unsexed 10·5 ± 0·6 (9·9 – 11·7), juv 9·6. Males *vs* females, $P < 0{\cdot}05$.

Ploceus luteolus (7): ♂ 13·0, ♀♀ 11·2, 12·5, 12·8, 13·5, unsexed 12·5, 12·9

Ploceus heuglini (2): 23·0, 26·4

Ploceus cucullatus (5): ♀♀ 29·5, 30·5, 31·0, 32·3, 32·7. The mean of 15 wet season females in Nigeria (Fry 1970) is 35·7 ± 4·3.

Ploceus nigricollis (18): 7 ♂♂ 24·6 ± 0·9 (23·0 – 25·8), 8 ♀♀ 23·7 ± 3·2 (21·0 – 31·2), unsexed 23·2, juvs 23·5, 23·9. Males *vs* females, $P > 0{\cdot}40$.

Malimbus rubriceps (1): ♂ 22·0

Quelea erythrops (10): ♂♂ 17·7, 21·7, 8 ♀♀/imm ♂♂ 16·0 ± 2·5 (13·9 – 21·8)

Euplectes afra (132): 81 ♂♂ 14·7 ± 2·7 (11·2 – 20·5), 44 ♀♀ /imm♂♂ 13·9 ± 1·0 (12·2 – 16·2), 7 unsexed 15·1 ± 0·9 (13·3 – 16·1). Males *vs* females/immature males, $P < 0{\cdot}001$

Euplectes hordeacea (2): ♂♂ 21·4, 22·2

Euplectes macrourus (8): ♂ 21·3, 6 ♀♀/imm ♂♂ 17·4 ± 1·0 (16·0 – 18·8), juv 14·9

Euplectes orix (50): 30 ♂♂ 17·0 ± 1·0 (14·3 – 18·9), 20 ♀♀/imm♂♂ 15·5 ± 2·2 (11·4 – 21·2). Males *vs* females/immature males, $P < 0{\cdot}001$. For a discussion of size differences in all four *Euplectes* species, see Davidson (in prep.).

Plocepasser superciliosus (3): 32·0, 35·3, 36·0

Passer griseus (1): 25·0

Petronia dentata D(2): 15·5, 16·7

Vidua macroura (7): ♂ 12·8, 6 ♀♀ 12·7 ± 0·9 (11·6 – 13·8)

Vidua chalybeata (5): ♂♂ 11·7, 12·4, 12·5, ♀♀ 10·7, 11·8; D(1): ♀ 12·5

Nesocharis capistrata (2): 10·4, 10·5

Pytilia hypogrammica (1): ♂ 14·3

Pytilia phoenicoptera (3): 13·9, 14·0, 14·9; D(2): 13·7, 16·1

Estrilda melpoda (43): 7·6 ± 0·7 (6·5 – 9·6)

Estrilda caerulescens (10): 8·4 ± 0·7 (6·7 – 9·1)

Estrilda bengala (28): 14 ♂♂ 9·3 ± 0·7 (8·3 – 10·5), 14 ♀♀ 9·6 ± 0·6 (8·6 – 11·0). Males *vs* females, P> 0·20. Britton & Dowsett (1969) list means of 10·5 and 10·7 for males and females in Zambia.
Estrilda larvata (7): ♂♂ 9·0, 9·5, 9·7, 10·5, ♀♀ 8·8, 9·3, unsexed 10·6
Lagonosticta rufopicta (11): 9·1 ± 1·1 (8·0 – 11·6); D(2): 8·3, 9·0
Lagonosticta senegala (9): 5 ♂♂ 7·9 ± 0·5 (7·6 – 8·5), 4 ♀♀ 7·8 ± 0·9 (7·2 – 8·2); D(1): ♂ 7·8. Males *vs* females, P> 0·50.
Lagonosticta rara (5): ♂ 9·7, ♀♀ 9·2, 10·4, unsexed 10·3, 11·3; D(1): ♀ 9·1
Lonchura cucullata (4): 8·0, 8·7, 8·9, 9·0; D(2): 8·9, 9·7

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Notes on some non-passerine birds of Wallacea

by C. M. N. White

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The five notes which follow arise from the preparation of an annotated check-list of the non-passerine birds of Wallacea. They indicate the need for modern field work in these Indonesian islands before some of the questions discussed can be finally resolved. The inventory of species occurring in Wallacea is no doubt still incomplete, and the status of many already known to occur is still not clear: the birds of many smaller islands are known only from collections made over half a century ago, unaccompanied by any field data.

DISTRIBUTION OF *Dendrocygna arcuata*

This duck is reliably recorded in Wallacea from Celebes and in the Lesser Sundas from Sumba, Roti and Timor. Stresemann (1941: 17) incorrectly stated that it is absent from the Lesser Sundas. Peters (1931: 153) gave Moluccas as part of its range, not mentioning any specific island. Mayr (1945: 3), in a taxonomic revision, cited Ambon as the only locality in Moluccas, and Van Bemmel (1948: 396) included the species in his list of Moluccan birds solely on the authority of Mayr's reference to Ambon.

I have failed to find any evidence that this duck occurs in Moluccas. There are no specimens from these islands in the British Museum (Natural History), the American Museum of Natural History, or the Leiden Museum, and I am grateful to Dr. G. F. Mees for drawing attention to the probable source of the error. In 1863 and 1864 specimens of *D. guttata* were collected at Ambon and sent to Leiden; but prior to *D. guttata* being described as a distinct species, Finsch in 1865 (*Neu-Guinea:* 183) had mentioned birds from Ambon under the name *D. arcuata*. It is thus evident that Moluccas and Ambon must be deleted from the known range of *D. arcuata*. One cannot now follow Stresemann (1941: 17) in the suggestion that it colonised Celebes from Moluccas, unless it can be shown that a former Moluccan population has disappeared.

Berlioz & Pfeffer (1966: 909) listed a downy young from Ambon as *Dendrocygna ?sp.* saying that both *D. arcuata* and *D. guttata* occur there. On present knowledge the specimen should be *D. guttata*.

Three species of *Dendrocygna* have been recorded from Wallacea, but only a single species occurs on any given island except for Celebes where *D. arcuata* and *D. guttata* both occur, though whether sympatrically is not known. Heinrich did not find them together, though Raven in 1916 collected both species on different dates at Likoepang in north Celebes.

THE STATUS OF *Accipiter fasciatus buruensis*

The Brown Goshawk of Australia is represented in the Lesser Sunda Islands and Djampea to Tukang Besi Islands by three well marked subspecies, and two others less well differentiated. They are not uncommon in open woodland and cultivation. In contrast only five specimens are known from Buru, all females and only one certainly an adult. Stresemann described them as *buruensis*, stating that they differed from the nominate Australian form only in smaller size. Condon & Amadon (1954: 215–216) recognised north Australian birds as *A. f. didimus* (Mathews), and said of the type of *buruensis* "Were Buru adjacent to north Australia we should not hesitate to list *buruensis* as a synonym of *didimus*". Greenway (1973: 265) commented on this "The occurrence of subspecies on islands between northern Australia and Buru does not appear to be strong enough ground for retention of a subspecies without morphological differences". I agree with Greenway and propose to treat *buruensis* as a synonym of *didimus* until more adequate material reveals some distinguishing characters. It is possible that Australian birds colonised Buru comparatively recently and have not yet developed any distinctive characters. This parallels the situation at Rennell and Bellona, Solomon Islands where the birds are identical with nominate *fasciatus*. The presence of distinct *wallacii* and *hellmayri* in the Lesser Sundas east to Sermatta and Damar poses no objection if Buru was colonised across the sea directly from north Australia.

It should, however, be noted that the apparent rarity of the species in Buru is curious, unless the island, being wetter and more forested than the Lesser Sundas, is ecologically unsuited to the species, which can then only exist as a small population. On the other hand, it is just possible that no breeding population at all exists in Buru and that the few specimens obtained there are sporadic vagrants from north Australia. The fact that all were females, and perhaps only one an adult, may lend some support to this view. On the other hand, the lack of *didimus* as a vagrant on intervening islands would be strange if this were true. Field work in Buru is required to establish the true status of the species there.

VARIATION IN *Ptilinopus bernsteinii*

This fruit dove was discussed by Goodwin (1967: 342) under the more familiar name *P. formosus*, but Mees (1973: 120) has since pointed out that it should be known as *P. bernsteinii*. It is confined to the north Moluccas: Toxopeus' sight record in Buru (Siebers 1930) of a bird which appeared to be of this species cannot be firmly accepted.

Jany (1955: 106) separated the population of this fruit dove in Obi from birds of Batjan, Halmahera and Ternate (as *Megaloprepia formosa micra*), stating that it is smaller. Unfortunately he only gave wing measurements of birds from Obi, and none from other localities to demonstrate the difference. I am very grateful to Mrs. M. LeCroy for the following wing measurements of the series in the American Museum of Natural History:—

Batjan (17)	males	146–151 mm	females	142–150 mm.
Halmahera (7)	,,	144–152	,,	139, 144
Ternate (2)	,,	144	,,	146
Obi (3)	,,	137, 139	,,	132

Jany's measurements from Obi were for males 130–138 mm, females 128–137 mm. It is thus clear that the birds from that locality are distinctly smaller and warrant separation as *P. b. micrus* (Jany).

THE STATUS OF *Cacomantis variolosus tymbonomus*

Cuculus tymbonomus Muller was named in 1843, based on a specimen from Timor. Peters (1940: 25) listed it as a synonym of nominate Australian *Cacomantis variolosus*, adding in a footnote that Dr. Junge had informed him that *tymbonomus* was an earlier name for *dumetorum* if the latter were considered a distinct north Australian form. Peters did not mention that Junge had already (1937: 179–180) published his views about the identity of *tymbonomus*.

Mayr (1944: 149) reported a series of seven specimens of *C. variolosus* collected in Timor by Stein. They differed from Australian birds in having narrow rufous edges to the greyish brown back, scapulars and lesser upper wing coverts, and in some other respects. No dates were given, but from Stein's itinerary they must gave been collected in January, February and April. Mayr considered that these birds represented a distinct endemic form, resident in Timor, and adopted *tymbonomus* as their name.

It is difficult to reconcile Junge's views on *tymbonomus* with those adopted by Mayr. Dr. G. F. Mees has kindly re-examined the type of *tymbonomus* in the Leiden musuem. He informs me that allowing for its age, it agrees well with north Australian birds and has none of the rufous dorsal markings which Mayr found in Timor birds. It is labelled 1829 without further date, and could in fact have been a migrant from Australia, since nominate *variolosus* winters in Wallacea as far as the north Moluccas and Sula Islands. If there is a distinct resident form in Timor, it is evident that *tymbonomus* is not on present evidence available as its name.

Cacomantis variolosus was last revised by Hartert (1925). A new revision of the species is badly needed, and this should take account of plumage sequences, since Parkes (1960: 332–335) found that some *C. variolosus* moult from the barred juvenile plumage to a second barred plumage. It would also be desirable to have confirmation that the species in fact breeds in Timor. In the meantime I leave the Timor birds obtained by Stein without a subspecific name.

THREE QUESTIONABLE RECORDS FROM TALAUD ISLANDS

The Talaud Islands including the adjacent Nenusa group are small, non-volcanic isolated oceanic islands, and are the northernmost land area included in Wallacea. Only about 38 species of birds recorded there are likely also to breed. No experienced ornithologist has visited the islands: most knowledge of their birds comes from collections made by Indonesian hunters working for C. W. Cursham or J. Waterstradt last century. Hartert (1898: 88–91) reported on a collection sent by Waterstradt. He noted that the collection included two examples of *Oriolus chinensis celebensis* which were probably not obtained at Talaud but on the way to or from Talaud (a strongly marked endemic subspecies in fact occurs at Talaud).

Three other species listed from Talaud also seem suspect:—

Trichoglossus ornatus: one specimen of this Celebes allospecies of *T. haematodus* (Hartert 1898). Peters (1937: 148) and Cain (1955: 432–479) have overlooked or ignored this record. The species is not reported from the islands between Talaud and Celebes so that the presence in Talaud of a bird identical with that of Celebes is peculiar. It is also odd that Cursham's collectors failed to obtain this conspicuous lory.

Eurostopodus macrotis macropterus: one specimen identical with Celebes specimens. The nominate form occurs in the Philippines, but there are no other records from the intervening small islands. This large nightjar is a common lowland species in Celebes, but it has never been recorded from any small oceanic island.

Picoides temminckii: a pair identical with Celebes birds, where this small woodpecker is endemic. It has not been reported from islands close to Celebes such as Muna, Butung or Banggai nor from Siau or Sangihe, and it would appear to be a species unable to make over-water colonisations, so that its presence, undifferentiated, at Talaud seems unlikely. In Celebes it is a common species in any timbered area, even an urban one.

These doubtful records underline the need for modern investigation of the birds of many parts of Wallacea. Although one cannot categorically prove that the specimens came from Celebes (like the *Oriolus*), a strong suspicion must remain that they did so, at least until the converse is proved by new records from Talaud.

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First record of the Ashy Drongo *Dicrurus leucophaeus* from Taiwan

by S. R. Severinghaus

Received 21 March 1977

On 28 September 1967, a female Ashy Drongo *Dicrurus leucophaeus* was trapped 250 m a.s.l. in the hills east of the town of Heng Chun, Pingtung Hsien (22° 00′ N, 120° 45′ E) at the southern tip of Taiwan (Formosa). This was the first, and remains the only, record to date of the Ashy Drongo from Taiwan, and is the basis for including Taiwan within its range in King *et al.* (1975).

The specimen is deposited in the bird collection of the Environmental Research Centre at Tunghai University (Taichung, Taiwan, ROC). Measurements (in mm) were recorded as follows: wing, 135; tail, 124; culmen, 23·4; gape, 28·9; tarsal length, 18·6; tarsal diameter, 2·5; total length, 239; weight, 34·4 g.

The bird was uniform grey except for a paler silver-grey facial patch (lores, ear coverts and narrow border above and below eyes), a narrow black forehead, and blackish primaries. Bill, legs, feet and toes were black. The iris was rich dark brown.

Although the races of the Ashy Drongo are difficult to differentiate, the specimen in question almost certainly belongs to *D. l. salangensis:* the light facial patch was a silver-grey, not white, and extended only slightly around and behind the eye to include the ear coverts. This agrees with the description of *salangensis* in Vaurie (1949). It is distinct from *D. l. leucogenis* in which the facial patch is white and extends further backward to the sides of the neck. The Taiwan specimen closely resembles the specimens of *salangensis* in the American Museum of Natural History. Both it and the museum specimens have darker plumage, including the facial patch, than the specimens of *leucogenis* in the museum.

Along coastal mainland China, *salangensis* usually breeds south of the Kwangtung-Fukien border, while *leucogenis* breeds north of that border (Vaurie 1949). Their breeding ranges meet, therefore, directly across the Formosa Straits from central Taiwan. Both subspecies migrate southwest across the continent to Thailand and the Malay Peninsula; *salangensis* also migrates to Hainan, arriving in late September (Vaurie 1949). The Taiwan specimen was doubtless a straggler to the island during autumn migration. It was caught on a perch trap (intended for migrating Brown Shrikes *Lanius cristatus*) placed on hills of cultivated sisal (*Agave* sp.).

This paper resulted from research during the Migratory Animal Pathological Survey, a project supported by the U.S. Army Research and Development Group (Far East), Department of the Army under Grant No. DA–CRD–AFE–S92–544–68–G130. I also wish to thank the staff of the American Museum of Natural History for permission to use their collection.

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Bulletin of Zoological Nomenclature: Opinions

In continuation of *Bull. Brit. Orn. Cl.* 97, 1977: 31, and by permission of the International Trust for Zoological Nomenclature, the following Ruling is quoted as an extract from an Opinion published in *Bull. Zool. Nomencl.* affecting birds:

OPINION 1069

(*Bull. Zool. Nomencl.* 33(3/4), 1977: 162)

Correction of entry in Official List of Family-Group Names in Zoology for Name Number 428 (Thraupidae).

(1) The request to use the plenary powers to suppress all uses of the family-group name Thraupidae (Aves) prior to its use by Wetmore & Miller, 1926, is refused.

(2) The entry for Name Number 428 on the Official List of Family-Group Names in Zoology is hereby corrected to read: Thraupidae, Cabanis, 1847 (type-genus *Thraupis* Boie, 1826) (Class Aves).

The following Rulings in Opinions are summarised:

OPINION 1068

(*Bull. Zool. Nomencl.* 33(3/4), 1977: 159)

Leptosomatidae in Aves and Nematoda; resolution of homonym arising from similarity in the names of the type genera. Leptosomidae (type-genus *Leptosomus*) to be used in Aves, Leptosomatidae (type-genus *Leptosomatum*) in Nematoda.

OPINION 1070

(*Bull. Zool. Nomencl.* 33(3/4), 1977: 165)

Archaeopteryx lithographica von Meyer, 1861 (Aves) given precedence over *Pterodactylus crassipes* von Meyer, 1857.

IN BRIEF

The Bald Ibis or Waldrapp *Geronticus eremita* in Ethiopia

In view of the present low numbers of the Waldrapp or Bald Ibis *Geronticus eremita*, whose world population of breeding pairs was down to about 150 in 1972 (Parslow (1973) *Bull. Brit. Orn. Cl.* 93: 163–166), it is worth recording a party of six at 9° 32′ N, 39° 29′ E, one km northeast of Chacha, Shoa Province, Ethiopia, on 22 January 1977. They were feeding on open highland grassland, with patches of cultivation, at about 2879 m, and permitted approach close enough to photograph them. They flew off and joined a party of about 15 Wattled Ibis *Bostrychia carunculata* with which they fed and flew. On being disturbed by shepherds they rose high into the air and were last seen alone in a compact flock at a great height soaring in a thermal.

Smith (*Bull. Brit. Orn. Cl.* (1970) 90: 18–24) summarised the knowledge of this bird's distribution in Ethiopia, and refers to his own observations round Addis Ababa in 1941 and 1952. The latter, a flock of about 100 some 80 km northeast of the capital, must have been very close to the 1977 locality. There have been no records in the interim, in spite of frequent searches in recent years, but the species could easily be overlooked amongst the common *B. carunculata* in the hundreds of square km of suitable habitat—most of it only accessible on foot.

5 February 1977

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Bulletin of the
British Ornithologists' Club

Edited by
Dr. J. F. MONK

Volume 97 No. 4 December 1977

FORTHCOMING MEETINGS

TUESDAY, 17 JANUARY 1978 at 6.30 p.m. for 7 p.m. at the Senior Common Room, South Side, Imperial College, South Kensington (entrance on the south side of Prince's Gardens, S.W.7, on the E. side of Exhibition Road, between the Victoria and Albert Museum and Hyde Park). *Dr. J. G. Harrison, O.B.E.*, on "*Indian Interlude*". Those wishing to attend should send a cheque for £3.80 a person to the Hon. Secretary with their acceptance on the enclosed slip, to arrive not later than first post on Thursday, 12 January.

TUESDAY, 14 MARCH 1978 at 6.30 for 7 p.m. at the Goat Tavern, 3 Stafford Street, W.1. (between Old Bond Street and Ablemarle Street, nearest Underground station, Green Park). *Dr. Bruce Campbell, O.B.E.*, on "*Problems of Gravel Pits*". Those wishing to attend should send a cheque for £2.60 a person to the Hon. Secretary with their acceptance on the enclosed slip, to arrive not later than first post on Wednesday, 8 March.

Please note this meeting is on the **SECOND** Tuesday in March.

Details of the meeting in May 1978 will be published in the next number of the *Bulletin*. It is hoped that the speaker will be a distinguished American ornithologist.

COMMITTEE

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Dr. G. Beven (*Vice-Chairman*)
R. E. F. Peal (*Hon. Secretary*)
M. St.J. Sugg (*Hon. Treasurer*)
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Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 97 No. 4 Published: 20 December 1977

The seven hundred and eighth meeting of the Club was held at the Senior Common Room, South Side, Imperial College, London, S.W.7 at 6.45 p.m. on Thursday, 15 September 1977.

Chairman: Dr. G. Beven, M.D.; present 14 members and 12 guests.

Professor V. C. Wynne-Edwards, C.B.E., F.R.S., F.R.S.E. gave an address of outstanding interest on 'Social competition controlling population density in birds'.

Professor Wynne-Edwards first discussed the factors suggested by Darwin as being responsible for limiting animal numbers, namely predation, disease, climate and food supply, giving examples of circumstances in which they were clearly effective. These factors did not alone, however, account sufficiently for the remarkably constant sizes of populations of some animals.

He next considered the function of territorial systems in preventing the carrying capacity of a habitat being exceeded. Examples of this included beavers (*Castor* spp.), with the need to prevent destruction of their habitat by excessive timber felling; and Red Deer (*Cervus elaphus*), where a social hierarchy gave the best feeding territories to hinds in calf. He then dealt at some length with Red Grouse (*Lagopus lagopus*), pointing out that population size was not governed by predation or disease. With this bird, size of territory was correlated with the quantity and quality of its main food, namely heathers (*Calluna vulgaris* and *Erica* spp.) and with success in obtaining a territory. Territorial success was related to hormonal condition, with competition for territories largely governed by strong social conventions.

In conclusion Professor Wynne-Edwards emphasized that animals which limit their numbers do so for the common good. He explained that he no longer supported the concept of group selection since clearly genes leading to lowered fertility would be selected against and eliminated. Nevertheless, he considered epideictic displays (i.e. communal manoeuvres, especially at dusk and dawn) were of vital importance as part of the system of control of populations by social mechanisms.

The address gave rise to a highly stimulating discussion.

The Seven hundred and ninth meeting of the Club was held at the Senior Common Room, South Side, Imperial College, London, S.W.7 at 7 p.m. on Tuesday, 15 November 1977.

Chairman: Mr. P. Hogg; present 24 members and 17 guests.

Mrs. Stephanie Tyler, Ph.D., spoke on the "Avifauna of Ethiopia", illustrating her talk with slides of the birds and habitats. She provided much recent information on the distribution of birds there and included observations made during the period she was held captive in 1976 and 1977, largely in montane country.

Weights of Some Puerto Rican Birds

by Storrs L. Olson and J. Phillip Angle

Received 17 May 1977

For a number of biological and evolutionary studies it has become increasingly important to know the weights of various taxa of birds. Few figures are available for species in the West Indies, where it is important to have data from many localities because of the number of species endemic to single islands and because the races of polytypic species can differ greatly in size from island to island (e.g. *Spindalis*). Apart from certain studies of individual species, the only figures for the weights of Puerto Rican birds appear to be those for 20 species given by Oniki (1975).

From 14 to 30 April 1977 we collected 279 specimens of 47 species of birds in Puerto Rico, mainly for preparation as skeletons to provide comparative material for identifying a large series of Pleistocene fossils obtained previously on the island. Each of these was weighed while fresh on an Ohaus triple-beam balance. We were able also to determine the sex of all specimens except a few of sexually non-dimorphic species that were preserved whole in formalin. Most of our specimens were collected in one of four localities: dry scrub in Guánica Forest Reserve (where, due to drought, few species were breeding); montane forest in Maricao Forest Reserve; coffee plantations near Utuado; and pastureland around Laguna Cartagena.

Since our sample sizes were usually small, we have simply listed the weight of each individual to the nearest 0·1 gm.

Falco sparverius caribaearum: ♂ 87·8
Rallus longirostris caribaeus: ♀ 247·9
Charadrius w. wilsonia: ♀ 61·2
Columba squamosa: ♂ 326·2
Zenaida m. macroura: ♀ 108·0
Columbina passerina portoricensis: ♂ 32·8, 33·4, 35·3, 39·9; ♀ 30·1, 35·4, 35·8, 37·7, 38·5.
Geotrygon m. montana: ♂ 126·2, 140·0; ♀ 116·1, 117·2, 122·9, 126·0, 141·4
Saurothera vieilloti: ♂ 73·55, 74·5, 83·4; ♀ 87·9, 96·9
Crotophaga ani: ♀ 82·0
Otus n. nudipes: ♂ 118·0, 132·35, 142·7; ♀ 102·9, 154·0
Caprimulgus noctitherus: ♂ 34·95, 35·5, 36·6
Chlorostilbon maugaeus: ♂ 2·85, 2·95, 3·1, 3·1, 3·1, 3·55 (fat); ♀ 2·8, 2·8, 2·85, 2·9, 2·9, 3·0, 3·05, 3·2
Anthracothorax dominicus aurulentus: ♂ 5·4, 5·5, 5·9, 6·0, 6·0, 6·1, 6·2, 6·3; ♀ 5·2, 5·3
Anthracothorax viridis: ♂ 6·7, 6·9, 6·95, 7·1; ♀ 6·5
Todus mexicanus: ♂ 5·3, 5·4, 5·5, 5·6, 5·8, 5·9, 5·9, 5·95, 6·4, 6·7; ♀ 5·4, 5·65; sex ? 5·2, 5·8, 6·0
Melanerpes portoricensis: ♂ 53·9, 56·6, 58·5, 65·8, 67·1; ♀ 45·7, 49·1, 49·9, 52·6, 55·1, 58·0, 59·4
Tyrannus d. dominicensis: ♂ 47·1
Myiarchus stolidus antillarum: ♂ 22·8, 23·3, 23·3, 23·8, 25·3; ♀ 22·0, 22·6, 22·9, 23·3, 24·1
Contopus latirostris blancoi: ♂ 11·0, 11·4, 11·5, 11·7; ♀ 9·25, 9·7, 9·8, 10·0, 10·0
Elaenia martinica riisii: ♂ 19·1, 19·15; ♀ 18·3
Hirundo f. fulva: ♂ 15·2, 15·3, 16·0, 16·0, 16·1, 16·2, 17·3; ♀ 15·25, 15·8, 16·2, 16·8, 16·85
Mimus polyglottos orpheus: 49·7; ♀ 60·7
Margarops f. fuscatus: ♂ 89·7, 89·9, 91·6, 92·3, 106·7; ♀ 88·35, 96·2
Turdus plumbeus ardosiaceus: ♂ 70·9, 72·7, 82·95, 83·35; ♀ 60·1, 64·4, 66·2, 67·9
Vireo latimeri: ♂ 10·6, 10·95, 11·4, 11·4, 12·5; ♀ 10·2, 10·3, 10·4, 11·1, 11·35, 12·1; sex ? 10·7, 11·25, 12·4, 12·5
Vireo a. altiloquus: ♂ 20·0, 20·8; ♀ 20·35, 22·1
Mniotilta varia: ♀ 10·0
Parula americana: ♂ 7·5; ♀ 7·0, 6·5
Dendroica petechia cruciana: ♂ 11·7, 13·1; ♀ 10·4, 10·5, 10·8, 11·4
Dendroica tigrina: ♀ 10·2
Dendroica caerulescens: ♂ 10·0 (no fat visible), 13·0 (heavy fat)
Dendroica a. adelaidae: ♂ 6·8, 7·1, 7·2, 7·3, 8·1; ♀ 6·2, 6·35, 6·6, 6·75, 6·8
Seiurus aurocapillus: ♀ 18·85 (heavy fat)
Geothlypis t. trichas: ♂ 9·4, 10·35
Geothlypis trichas ignota: ♂ 11·6
Setophaga ruticilla: ♀ 6·5
Coereba flaveola portoricensis: ♂ 9·0, 9·1, 9·2, 9·8; ♀ 8·2, 9·3, 9·35
Euphonia musica sclateri: ♂ 12·4, 12·5, 13·1, 13·8; ♀ 13·35, 14·35
Spindalis zena portoricensis : ♂ 29·2, 30·6, 33·2; ♀ 32·4
Nesospingus speculiferus: ♂ 32·6, 35·65, 36·4, 36·5, 37·25, 37·4, 37·7, 38·1; ♀ 31·0, 31·7, 37·0, 37·2, 37·95, 39·7; sex ? 32·5, 35·6, 35·8, 36·55
Quiscalus niger brachypterus: ♂ 80·9, 85·8, 86·4, 89·5, 93·1; ♀ 61·9, 62·2, 66·2, 66·4, 67·2
Icterus dominicensis portoricensis: ♂ 41·5, 42·1, 42·15, 44·9
Icterus icterus ridgwayi: ♂ 75·3; ♀ 67·5
Agelaius x. xanthomus: ♂ 39·1, 41·4
Tiaris olivacea bryanti: ♂ 8·0, 8·75, ♀ 8·2;

Tiaris bicolor omissa: ♂ 9·3, 9·6, 9·9, 10·0; ♀ 9·1, 9·5, 9·8, 10·4
Loxigilla p. portoricensis: ♂ 31·1, 32·0, 32·8, 34·4, 34·7, 34·7, 34·8, 34·9, 35·1, 35·8, 38·0, 39·1; ♀ 23·4, 26·0, 26·5, 27·8, 29·4, 31·5, 32·6, 36·7; sex ? 27·3, 29·5, 31·3, 34·6
Estrilda amandava: ♂ 8·6

Acknowledgements: This study was supported by a grant from the National Geographic Society and was greatly facilitated through the cooperation of the Department of Natural Resources of the Commonwealth of Puerto Rico, in which connection the aid of Mr. Herbert Raffaele was of particular importance. We thank George A. Clark for comments on the manuscript.

Reference:
Oniki, Y. 1975. Temperatures of some Puerto Rican birds with note of low temperatures in todies. *Condor* 77: 344.

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Review of the records of three Palaearctic ducks in Southern Africa

by A. Clark

Received 26 May 1977

Moreau (1972) lists eleven species of Palaearctic duck which can be found wintering in East Africa. Of these the Garganey *Anas querquedula* is the most common, while the only other species consistently wintering south of the Sahara in large numbers is the Northern Pintail *Anas acuta*. The wintering distribution of the European Shoveler *Anas clypeata* is similar to that of the Northern Pintail but the numbers are less. These three species occasionally penetrate south of latitude 10°S.

As certain authors have been unable to accept the occurrence of the European Shoveler in the Cape Province as that of a genuine migrant (Benson & Grimwood 1959, Winterbottom & Middlemiss 1960) it was felt that the position could be clarified by bringing together and reviewing all records for Zambia, Malawi, Botswana, Rhodesia, Mozambique, South West Africa (S.W.A.) and the Republic of South Africa (R.S.A.) of the three species mentioned above.

GARGANEY *Anas querquedula*

The Garganey records are given in Table 1, but excluded are an old record from Mbara, Zambia (about year 1900) and other records of specimens collected in December, January and February (year not stated) at Itawa swamp, Ndola which were originally misidentified by Schauensee as *Anas capensis* (Benson *et al.* 1970).

Zambia. Fairly regular since 1972. During the February and March 1974 rains 100 or more were counted at Lochinvar on three occasions.

Malawi. First recorded in 1934 (the record at Loudon was between 1932 and 1938) and then at intervals until 1948, but not again until 1973. Flocks of *c* 40 birds were seen in 1942 and 1944.

Rhodesia. Records include a flight of 150–200 birds, believed to be Garganey, near Salisbury in December 1945 (Kennedy 1947). Similar numbers were not seen in Zambia at this time. Woodall (1975) showed there was a correlation between the presence of Garganey in Rhodesia and low rainfall in the Sahel region, south of the Sahara.

The Zambian, Malawian and Rhodesian records were all obtained during the period November to April at a time when the birds can be expected in their winter quarters. Most records have been obtained since 1940, with an unexplained gap in all these countries between 1953 and 1970.

TABLE 1.

Records of Garganey *Anas querquedula* south of the Sahara in eastern/southern Africa

Date	*No. of birds*	*Type of record*	*Sex*	*Locality*	*Reference*
ZAMBIA					
2–ii–43 to 14–ii–43	2	specimen	♂♀	Monze, Mazabuka	White 1943, Irwin pers. comm.
11–xii–43	4	1 ♂ specimen	1♂ 3♀	Itawa swamp, Ndola	Button, E. L. pers. comm.
12–xii–43	1	specimen	♂	Itawa swamp, Ndola	Button, E. L. pers. comm.
11–i–44	6	1♀ specimen	2♂ 4♀	Itawa swamp, Ndola	Button, E. L. pers. comm.
5–ii–44	4	2 specimens	♀♀	Itawa swamp, Ndola	Button, E. L. pers. comm.
6–i–45	10	1 ♂ specimen	3♂ 7♀	Itawa swamp, Ndola	Button, E. L. pers. comm.
21–i–45	1	specimen	♀	Itawa swamp, Ndola	Button, E. L. pers. comm.
24–i–49	1	specimen	♀	Lusaka	Irwin pers. comm.
9–iii–49	20	sight		Lundazi, East Province	Button, E. L. pers. comm.
30–i–50	1	specimen	♀	Lake Lusiwashi	Irwin pers. comm.
30–i–53	1	specimen	♂	Kanyunyu Dam, Lundazi	Irwin pers. comm.
31–xii–71 to 21–iv–72	1–7	sight	both	Lochinvar	Tucker 1972
14–i–72 to 11–iv–72	2–27	sight	both	Luanshya	Tucker 1972
21–ii–72	1	sight		Kabulonga Dam, Lusaka	Tucker 1972
22–xi–72 to 26–iii–73	1–5	sight		Kafue, Kitwe, Lusaka Lochinvar, Luanshya and Mufulira	Penry 1975
30–xi–73 to 3–iv–74	1–100	sight		Kitwe, Lochinvar (100), Mufulira, Blue Lagoon	Penry 1975
30–xi–74 to 15–iii–75	1–15	sight		Kitwe, Lochinvar, Luanshya, Mufulira	Penry 1975
MALAWI					
13–i–34	2	specimen	♂♀	Bua River	Bannerman 1934
20–iii–?	1	sight	♂	Loudon	Benson 1940
1–xii–39	*c.* 30	sight		Lake Nderendere	Benson 1942
20–xi–42	40	sight		Fort Johnson (now Mangochi)	Benson 1942
Jan./Feb.–43	2–20	sight		Fort Johnson	Benson 1944
11–i–44	3	sight	1♂ 2♀	Kota-kota	Benson 1947
12–xii–44	*c.* 40	sight		Kota-kota	Benson 1947
?–xii–45	2	specimen		Lake Chilwa	Benson & Benson 1948
27–xi–48	10	1 specimen		Karonga	Benson 1949
5–xii–48	7	sight		Lake Kasuni	Benson 1949
Dec./Jan.–?	20	sight		Mazimba District	Button, E. L. pers. comm.
late 1973	2	specimen		Domasi	Benson & Benson in press
16–xii–76	14	sight		Kasunthula, Shire valley	Day, D. pers. comm.
BOTSWANA					
May–43	1	specimen		Lobatsi	Roberts 1943
RHODESIA					
Dec.–45	2	specimen		Gwebi flats, Salisbury	Kennedy 1947
Dec.–45	150–200	sight		Gwebi flats, SBY	Kennedy 1947
6–iii–49	1	specimen	imm. ♀	Mangwe	Smithers 1950
13–iii–49	2	specimen	imm. ♀♀	Bembesi	Smithers 1950
29–xi–52	1	sight	imm.	Salisbury	Brooke 1974
15–iii–70	2	sight	♂♂	near Bulawayo	Talbot 1970
19–xi–72	1	sight	♀	Lake McIlwaine, SBY.	Tree 1973
11–i–73	1	specimen	♀	United Farm, SBY.	Irwin pers. comm.
11–xi–73	1	specimen	♀	near Salisbury	Woodall 1975
18–xii–73	1	sight	♀	Que Que	Vernon 1974
Feb.–74	1 or more	sight		near Bulawayo	Irwin 1974
3–xii–75	1	sight	♀ or imm.	Nyamagavi, Mashonaland	Tree 1976
4/7–iv–76	1	sight	♀	Rainham Dam, SBY.	Tree 1976
15–i–77	1	specimen	♂	Bonisa, Nyamandhlova	Irwin pers. comm.
R.S.A.					
1–viii–70	1	sight	♂	Benoni, Transvaal	Schmitt 1970
3–i–71	1	sight	♀	Bethal district, Tvl.	Pocock, T. N. pers. comm.
23–i–71 to 13–iii–71	1	sight	♂	Germiston, Tvl.	Clark 1971, Schmitt & Brensing 1971
12–ix–72 to 3–xi–72	1	sight	♂	Germiston, Tvl.	Clark 1972a
19–xi–72	1	sight	♀	Marievale, Tvl.	Madden, S. T. pers. comm.
9–ii–73	1	sight	♀ or imm.	Nigel district, Tvl.	Clark pers. record
6 and 13–iii–77	2	sight	♂♀	Marievale, Tvl.	Hopcroft 1977

Botswana. The single record is one of the earliest, a bird collected in 1943 at Lobatsi *c* 500 km south of the most southerly Rhodesian sighting. May is late for the species to be in its winter quarters so it was probably a disorientated straggler or an injured bird.

R.S.A. The seven records have all been obtained in the Transvaal since 1970, six being sight records of single birds. (Mackworth-Praed & Grant (1962) refer to an earlier Transvaal record for which I have been unable to find details.) All sightings were not much further south than Lobatsi, Botswana. It is not easy to accept two of the seven records, the 1970 Benoni and the 1972 Germiston records, as those of genuine European migrants since Garganey are flightless in July and August and the male is likely to be in eclipse plumage between August and November, and even until February (Bauer & Glutz von Blotzheim 1968). There are no such out of season records for Zambia, Malawi or Rhodesia, and the other five records may also be doubted. During the 1971/72 summer normal rains fell in the Transvaal, but the 1972/73 summer, during which three of the seven Transvaal records were obtained, was exceptionally dry.

No Garganey have been recorded for Mozambique, possibly due to lack of competent observers. There is an interesting record (Vinson 1947) from Rodriguez Island in the Indian Ocean (19° 41′ S, 63° 23′ E) where two were seen, one of which was shot, on 29 January 1945. Shortly before, a severe cyclone moving in a southwesterly direction had passed close to the island and it was assumed that the birds had been swept off their normal course.

TABLE 2.
Records of Northern Pintail *anas Acuta* south of the Sahara in eastern/southern Africa

Date	*No. of birds*	*Type of record*	*Sex*	*Locality*	*Reference*
ZAMBIA					
Jan.-42	2	specimen	♂♂	Itawa swamp, Ndola	Button, E. L. pers. comm.
18-ii-43	1	specimen	♂	Itawa swamp, Ndola	White 1944
14-xii-43	?	sight		Itawa swamp, Ndola	Button, E. L. pers. comm.
28-ii-73	2	sight		Lochinvar	Penry 1975
26-xii-73 to 3-i-74	1	sight		Kitwe	Dowsett in footnote to Irwin 1974
8/13-i-74	1	sight		Mufulira	Dowsett in footnote to Irwin 1974
19-xii-74	1	sight		Kitwe	Penry 1975
2-i-75	1	sight		Mufulira	Penry 1975
RHODESIA					
10/13-xi-58	2	sight	pair	Rainham Dam, SBY.	Took 1959
3/10-ii-74	5-8	sight & 2 specimens	2♀	Turk Mine, Bulawayo	Irwin 1974
R.S.A.					
18-i-73	1	sight	♂	Barberspan, Transvaal	Skead &Broekhuysen 1974
12-vii-73	1	sight	♂	Barberspan, Transvaal	Skead, D. M. pers. comm.

Northern Pintail *Anas acuta*

Zambia. Eight records, five of which were single birds, and all during December to February (Table 2). Since 1973 this species has apparently occurred more frequently. During the 1973/74 northern winter exceptionally heavy rains fell over most of south-central Africa and Rhodesia, and as pointed out by Irwin (1974) "this factor, accompanied by the progressive series of droughts in the northern semi-arid savannah belt of Africa" could have forced many birds south of their normal wintering area (which would apply to Garganey as well as Northern Pintail).

Malawi. No records prior to 1977 (Benson, in press).

Rhodesia. Two were seen on a dam near Salisbury in November 1958 and two ♀♀ were taken from a flight of five near Bulawayo in February 1974.

Botswana. Smithers (1964) recorded none.

R.S.A. Two sight records of single males. It is difficult to accept the July record, since Northern Pintails are usually flightless in July, the breeding plumage of males not being complete until October/November or even later (Bauer & Glutz von Blotzheim 1968). The bird could have escaped from a waterfowl collection, as also could have the January bird. It is also possible that it was the same bird that was seen on each occasion.

TABLE 3.
Records of European Shoveler *Anas clypeata* south of the Sahara in eastern/southern Africa

Date	*No. of birds*	*Type of record*	*Sex*	*Locality*	*Reference*
ZAMBIA					
23–xii–37	6	sight	2♂ 4♀	Mpika District	Button, E. L. pers. comm.
5–i–44	1	specimen	♂	Itawa swamp, Ndola	Button, E. L. pers. comm.
27–i–44	1	specimen	♀	Itawa swamp, Ndola	Button, E. L. pers. comm.
8–i–45	1	sight		Itawa swamp, Ndola	Button, E. L. pers. comm.
Nov. & Jan.	1	sight		Lundazi, Eastern Province	Benson *et al.* 1971
27–ii–73	1	sight		Lochinvar	Penry 1975
Dec.–73 to Jan.–74	1–4	sight		Kitwe	Penry 1975
24/31–xii–74	1	sight		Kitwe	Penry 1975
MALAWI					
Dec.–32	1	sight		Fort Johnson	Benson 1949
27–xi–48	1	specimen	♀	Karonga	Benson 1949
RHODESIA					
12–iii–72	1	sight	♂	Hampton, SBY.	Blencowe 1972
S.W.A.					
2–x–62	1	sight	♂	Andara, Okavango	Borsutsky 1964
R.S.A.					
14–ix–1893	1	specimen	♂	Riet Vlei, Cape Town	Stark & Sclater 1906
6–xi–39	1	sight	♂	Riet Vlei, Cape Town	Broekhuysen & Meiklejohn 1941
19–vii–44	3	sight	1♂ 2♀	Zeekoe Vlei, Cape Town	Benson 1950
19–viii–44	2	sight	1♂ 1♀	Zeekoe Vlei, Cape Town	Benson 1950
4–xi–44 to 20–ii–45	2	sight	pair	Benoni, Transvaal	Daniels 1952
22–ix–56	1	sight		Van Wyk's Rust, Tvl.	Patten 1957
13–xii–56	1	sight	♂	Knysna Lake, C.P.	Middlemiss in Benson & Grimwood 1959
17–viii–57	1	sight	♂	Bredasdorp, C.P.	
4–ix–59	1	sight	♂	Bredasdorp, C.P.	
May–?	1	sight		East Griqualand, C.P.	Winterbottom & Middlemiss 1960
14–vi–70	1	caught & ringed	♂	Evander, Tvl.	Skead, D. M. pers. comm.
16/25–vii–71	1	sight	♂	Buffels River, C.P.	Forrester 1972
3–xi–72 to 7–xii–72	1	sight	♂	Germiston, Tvl.	Clark 1972b
19–vi–75 to 4–vii–75	1	sight	♂	Barberspan, Tvl.	Skead, D. M. pers. comm.

EUROPEAN SHOVELER *Anas clypeata*

Zambia. All the records (Table 3) fall within the normal wintering period and in number equal the Northern Pintail records. The four birds sighted in December 1973 coincided with the local rains and with drought in the Sahel.

Malawi and Rhodesia. Single birds obtained between November and March.

Botswana. Smithers (1964) recorded none.

S.W.A. The single bird, identified as a male, on 2 October is unlikely to have spent the summer in Europe, since eclipse plumage is often not shed until December (Witherby *et al.* 1939).

Mozambique. Hanmer (1976) recorded two Cape Shoveler *Anas smithi* from Mopeia on 26 December 1972. Re-checking with Mrs Hanmer details of the plumage obtained at the time shows that the birds could have been European Shoveler in their first winter plumage, in which case this would be the first record for Mozambique.

R.S.A. In the light of the few Zambian, Malawian and Rhodesian records, the 13 R.S.A. records, 8 of which come from the Cape Province (the two Zeekoe Vlei records are taken to be the same birds), immediately become suspect as not true migrants, particularly also as there are no Garganey records for the Cape Province. All are sight records except one collected in 1893 and one trapped in 1970. Significantly males predominate, presumably in full breeding plumage. If we exclude the nine records obtained between May and September, there are four November/December records which could possibly be European migrants: two in the Cape Province and two in the Transvaal.

Benson (1950) and Benson & Grimwood (1959), reviewing the Cape Province records, inclined to the view that they were Cape Shovelers showing an exceptionally exaggerated dimorphism, but did not exclude the possibility of birds having escaped from captivity. Winterbottom & Middlemiss (1960) compared the European and Cape Shovelers and considered the differences presented were sufficient to support "specific distinctiveness". They rejected the possibility of exaggerated dimorphism on the basis that *smithi* is the more primitive form and that there was no reason to suppose that it had ever evolved a breeding plumage showing the degree of dimorphism found in *clypeata*; they also thought it more likely that some of the birds had escaped from captivity.

Anyone familiar with the two species in the field could not easily fail to distinguish them. Apart from the distinctive colouring of the *clypeata* male, the beak is noticeably more spatulate than that of *smithi*. Consequently I think the identification of most of the R.S.A. records must be accepted as correct, whatever the birds' origins.

DISCUSSION

Records of all three species in Zambia and of Garganey in Rhodesia have increased since 1972, either due to increased attention being given to ducks, or because of a real increase in numbers of these European migrants.

The Garganey is the only species for which African wintering grounds are of great importance (Moreau 1972) and it is not surprising that single birds and occasional flocks move south when their normal wintering quarters suffer drought. However, two of the R.S.A. male birds occurred when European birds are in eclipse and it is unlikely that they were migrants, the only possible alternative being that they had escaped from captivity; and this could apply to the remaining five records.

Two Zambian and one Rhodesian Northern Pintail records, the latter a flight of several birds, obtained during the 1973/74 northern winter, coincided with drought in the Sahel and heavy rainfall in these regions. The two R.S.A. records were obtained during a drought period and the male recorded in July at least is unlikely to have been a migrant.

It is even more difficult to accept 13 R.S.A. European Shoveler records as those of true migrants. Moreau (1972) states that the European Shoveler is less common in East Africa than the Northern Pintail so that records of the former in R.S.A. are unlikely to exceed those of Garganey or Northern Pintail, which are themselves rare and suspect.

In recent years other exotic waterfowl have been seen wild in R.S.A. A European Shelduck *Tadorna tadorna* was recorded near Port Elizabeth, Cape Province in June 1974 and considered to be a migrant (Blake 1975), although the species has not been recorded wintering in East Africa and the record was obtained during the European breeding season. This species is kept in zoological gardens and was present at East London Zoo, Cape Province at the end of 1972.*

An American Black Duck *Anas rubripes* was seen in Durban Bay, Natal on 30 March 1975 (Brooke & Sinclair 1976). At the time it was considered to be an escape, and subsequently guessed to have come from a ship which had arrived in the Bay a few weeks earlier with a cargo of captive birds (Brooke *in litt.*). A similar incident in 1916 is considered responsible for the establishment of a feral population of Mute Swans *Cygnus olor* in the Knysna and Humansdorp districts of the Cape Province (Palmer 1966).

At a pan in the residential area of Benoni, Transvaal, during June and July 1976 there was a free-flying duck which I subsequently identified as a female or immature Ringed Teal *Callonetta leucophrys*, a South American species which could only have come from a captive source.

The importation of exotic birds into R.S.A. has increased in recent years, and apart from zoological gardens, which keep both foreign and indigenous waterfowl, there are a number of private collections doing the same, one of which recently advertised for sale a pair of Ringed Teal.

Prior to 1968 the Transvaal Nature Conservation Ordinance controlled only the keeping of indigenous birds; there were no restrictions on the importing or keeping of exotic birds. A new Ordinance came into force on 1 January 1968 whereby no exotic bird could be imported or released without a permit. However this has had little effect on the number of importations, and apparently none on the sale or accidental release of birds kept in captivity. In the Cape Province as in the Transvaal, there was no control on the importation or keeping of exotic waterfowl until legislation was introduced in 1968 involving permits for importation and keeping of birds in captivity, which had then to be permanently pinioned. In September 1975 exotic waterfowl were classified as protected species, enabling full control over the importation and movement within the Cape Province to be maintained and restricting the importation to *bona fide* Zoos and Research Institutions.

There is thus sufficient evidence to cast doubt on the R.S.A. records of all three species as being those of genuine Palaearctic migrants and this situation will persist until we can reliably discount the possibility of their being escaped birds. However, the Zambian, Malawian and Rhodesian records fit into the general pattern of the wintering areas of these three species and can be accepted as those of genuine Palaearctic migrants.

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*Recently confirmed as an escaped bird (Every, B. (1977) *The Bee-eater* 28(2): 10.)

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The rediscovery of the Blofeld and the Wilkes Collections of sub-fossil birds from St. Helena

by C. A. Walker

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Blofeld and Wilkes collected sub-fossil bird bones on St. Helena in the middle of the nineteenth century. Both collections were presented to the Geological Society of London (Blofeld 1852), but neither was properly catalogued; and in 1911 the Society's overseas collections, presumably *in toto*, were transferred to the Department of Geology (now Palaeontology) of the British Museum (Natural History). The importance of the extinct birds of St. Helena became apparent only recently when new collections of their own were worked on by Ashmole (1963) and Olson (1975), from which Wetmore (1963) and Olson described a number of new species of Quaternary age. Ashmole, however, stated that he was unable to trace the specimens in the British Museum and Olson made no further enquiries. Since then both the Blofeld and the Wilkes collections have been found with uncatalogued sub-fossil mammal remains from another locality.

The precise locations of Wilkes' and Blofeld's collecting sites remain unknown. Ashmole and Olson both looked for Wilkes' " Turk's Cap Bay " locality: neither, however, found any trace of bones in the area, and both share Hutchison's opinion (1950) that Wilkes' collecting locality was Prosperous Bay. As for the Longwood deposit, Blofeld stated that the locality was " about half a mile behind Longwood, at an elevation of about 1,700 ft. above the level of the sea, on a hill-side which is worn into numerous clefts or ravines by the heavy rains. The surface of the hill to a depth of 5 to 6 feet consists of dark mould and under this a stratum of greyish brown friable earth about 3 to 4 feet thick; in this latter bed the shells occur. This earth also contains bird bones perfect and fragmentary, in abundance . . . ". The description of the substrate is accurate, for there is a sample of the " earth " with the fossil molluscs collected by Blofeld, also in the British Museum. Ashmole made no search for this deposit; Olson failed to locate the site from Blofeld's description, but tentatively suggested that it was Sugarloaf Hill.

Both original collections were examined by Richard Owen who identified their contents as " marine birds, with some of the Wilkes' belonging to the sub-genus *Puffinus* " (in Blofeld 1852: 2). More critical examination today, however, shows that they also include examples of gruiform, charadriiform and coraciiform birds.

The majority of the bones from the two collections (B=Blofeld, W=

Wilkes), all housed in the Dept. of Palaeontology of the British Museum (Nat. Hist.), have now been identified:

PROCELLARIIFORMES

Pterodroma rupinarum Olson, 1975.

Imperfect left and right coracoids (A 4436-38, 50); proximal ends of left and right humeri (A 4431-34, 47), distal end of left humerus (A 4444); proximal end of right ulna (A 4448); imperfect left and right carpometacarpi (A 4440-42) [all W.].

Pterodroma cf. *rupinarum.*

Imperfect left carpometacarpus (A 4443) [W.].

Bulweria cf. *bifax* Olson, 1975.

Imperfect right carpometacarpus (A. 4443) [W.].

Puffinus assimilis/lherminieri [extant spp.].

Imperfect lower mandible (A 4420) [B.]; distal ends of humeri (A 4445-6, 51, 53) [W.].

Ashmole (1963) referred his material to "*P. assimilis/lherminieri*". Olson, however, was more specific and referred all the known material to *P. lherminieri* on the basis of small size differences, *lherminieri*'s occurrence on Ascension Island (the nearest land to St. Helena) and the probability that the warm water conditions of St. Helena probably suited *lherminieri* better than *assimilis*. It is interesting to note that Loveridge (*pers comm.* C. J. O. Harrison) states that *P. assimilis boydi* has now been found alive on St. Helena.

Puffinus sp. indet.

Imperfect left femur (A 4426) [B.].

GRUIFORMES

Atlantisia podarces (Wetmore, 1963).

Imperfect left femur (A 4425); distal end of right tibiotarsus (A 4421) [B.]; proximal end of right tarsometatarsus (A 4461), distal end of right tarsometatarsus (A 4460) [W.].

Porzana astrictocarpus Olson, 1973.

Distal ends of left and right tibiotarsi (A 4422-24) [B.], (A 4917) [W.]; imperfect right tarsometatarsus (A 4427) [B.].

CHARADRIIFORMES

Gygis alba [extant sp.].

Imperfect left carpometacarpus (A 4419) [B.],

CORACIIFORMES

Upupa antaios Olson, 1975.

Complete right humerus (A 4418) [B.], measuring 37·9 mm in length, somewhat larger than those described by Olson.

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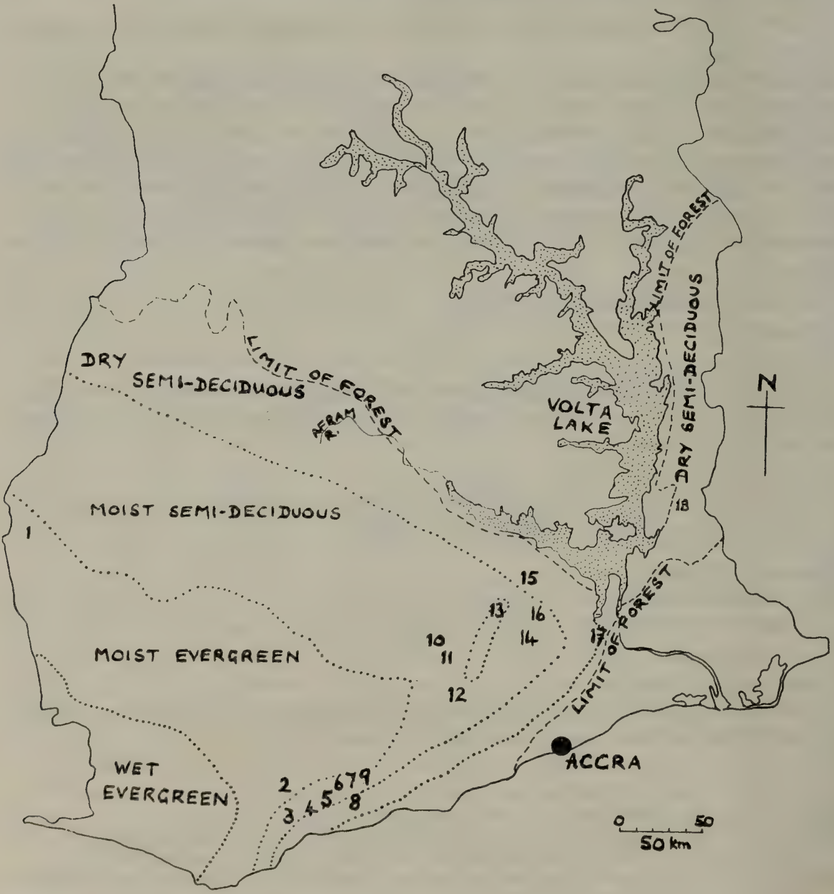
Notes on some uncommon forest birds in Ghana

by M. A. Macdonald and I. R. Taylor

Received 28 June 1977

During a study of the ecology of forest birds in Ghana we have recorded a number of species (listed below) which are either new to the area, or which have proved to be more common in the area than was previously believed, including some regarded as very rare in Ghana. The observations were made on regular visits to 18 sites spread from east to west across the forest region (Table 1, Fig. 1) covering the 4 main types of forest habitat in the region: primary forest, reserved secondary forest, cocoa farms and 'mosaic' forest.


DRY
SEMI-DECIDUOUS
LIMIT OF FOREST
AFRAM R.
VOLTA LAKE
LIMIT OF FOREST
DRY SEMI-DECIDUOUS
N
MOIST SEMI-DECIDUOUS
1
18
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MOIST EVERGREEN
LIMIT OF FOREST
ACCRA
WET EVERGREEN
2
6 7 9
3 4 5
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50 km

Fig. 1. Map of southern Ghana showing the boundaries of the major forest types (from Hall & Swaine 1976) and the positions (numbered as in Table 1) of the sites visited during the study.

Cocoa farms consist of cocoa trees as understory with a higher canopy of forest trees retained for shade. 'Mosaic' forest consists of small patches of secondary forest or cocoa farm interspersed with open farmland.

All the identifications were sight-records made with great care under

TABLE 1

Names and brief description of forest sites in Ghana visited during the study (Fig. 1)

Site No.	*Lat. and Long.*	*Name*	*Forest type (Hall & Swaine 1976)*	*Description*
1	6° 38′ N, 3° 08′ W	Bia National Park	moist evergreen	primary forest except on edge
2	5° 16′ N, 1° 38′ W	Subri River Forest Reserve (F.R.)	” ”	closed secondary forest
3	5° 09′ N, 1° 40′ W	Daboase	moist semi-deciduous	Cocoa, some open farmland
4	5° 11′ N, 1° 34′ W	Hemang	” ”	Cocoa, some open farmland
5	5° 15′ N, 1° 30′ W	Ejinase-Akutuase	” ”	Cocoa, some open farmland
6	5° 19′ N, 1° 24′ W	Pra Suhien F.R.	” ”	closed secondary forest
7	5° 20′ N, 1° 22′ W	Kakum F.R.	” ”	closed secondary forest
8	5° 14′ N, 1° 20′ W	Efutu-Jukwa	dry semi-deciduous	mosaic with cocoa farms
9	5° 20′ N, 1° 16′ W	Asuansi-Krua	moist semi-deciduous	cocoa, some open farmland
10	6° 05′ N, 0° 50′ W	Kade	” ”	very mixed, with primary and secondary forest; cocoa, oil palm, rubber and citrus farms
11	6° 02′ N, 0° 49′ W	Akwatia	” ”	mosaic, with cocoa
12	5° 38′ N, 0° 47′ W	Esen Apam F.R.	” ”	closed secondary forest
13	6° 17′ N, 0° 34′ W	Atewa Range F.R.	upland evergreen	primary forest
14	6° 11′ N, 0° 28′ W	Suhum-Tafo Road	moist semi-deciduous	cocoa farm
15	6° 27′ N, 0° 24′ W	Worobong F.R.	dry semi-deciduous	closed secondary forest
16	6° 15′ N, 0° 22′ W	Tafo	moist semi-deciduous	small patches of secondary forest in cocoa farming area
17	6° 11′ N, 0° 03′ W	Odumase F.R.	dry semi-deciduous	closed secondary forest, but with considerable active farming within reserve
18	6° 52′ N, 0° 28′ E	Amedzofe	” ”	cocoa, transitional forest (forest-savanna boundary), some open farmland, and grassland

Note: Pra Suhien and Kakum F.R. are on the boundary between the moist evergreen and moist semi-deciduous zones. The bird fauna is more typical of the former type.

excellent conditions for observation. English nomenclature follows Bannerman (1953) and the scientific names and sequence follow Mackworth-Praed & Grant (1970, 1973). Unless otherwise stated, information on previously known distribution and status is taken from these works.

Cassin's Hawk-Eagle *Cassinaetus africanus*. Previously considered rare, this little-known eagle was seen regularly between August and December 1976 and in April and June 1977 at sites 2, 4, 6, 7, 13 and 18. At one site 2 birds were displaying together in the air, at another a single adult was calling persistently from a perch, and on 16 December 1976 a nest containing one well-grown chick was found in the Pra Suhien Forest Reserve. The bulky nest was *c* 20m above the ground, and the single adult in attendance was silent and unobtrusive. On 4 June 1977 a freshly fledged youngster was calling loudly from a perch only 1·5m from the same nest, strongly suggesting double-brooding. Recently the species was discovered in Ivory Coast (Brunel & Thiollay 1969) and Liberia (Serle *et al.* 1977) but previously was not known from west of about 0° 30′ E.

Black-collared Lovebird *Agapornis swinderniana*. Two birds were seen at the Pra Suhien F.R. (site 6) on 12 June 1977. Up to 10 together were seen at Bia (site 1) on 4 occasions between 7 and 10 April 1977, and at least 7 at Kakum F.R. (site 7) were watched feeding on strangler figs on 12 June 1977. Apart from one overlooked record from 1902 (Snow 1976) these are the only records of the species between Liberia and Cameroun.

Laughing Hornbill *Bycanistes fistulator*. Over most of the area birds resembled *B. f. fistulator* (Piping Hornbill). At the Atewa Range F.R. (site 13) 3 birds on 1 and 9 August 1976, and at Worobong F.R. (site 15) 2 birds on 15 October 1976 showed the more swollen bill and greater amount of white in the wing and (especially) the tail characteristic of *B. f. sharpii*. We have once recorded *B. f. fistulator* at Atewa. The Afram River (now much altered by the Volta Dam) was considered the boundary between the two forms, so these records represent a 60 km westward extension to the known range of *sharpii*.

Piculet *Verreauxia africana*. Two birds, one fitting exactly the description of an adult female Piculet and the other (rather duller and lacking the bright red eye-patch) possibly a young bird, were seen together near Akutuase (site 5) on 27 January 1977. This appears to be the first record from anywhere in Upper Guinea, although a doubtful report from Nigeria was quoted by Bannerman (1953). Sub-specific differences between Upper and Lower Guinea forms of this and other species new to Upper Guinea may be expected if specimens are ever obtained.

Bates' Swift *Apus batesi*. A small black swift with strikingly rapid fluttering flight was seen at close range in Subri R.F.R. (site 2) on 26 August (at least 1), 4 September (at least 4) and 25 December (1). We feel this can only be Bates' Swift, a species known from Lower Guinea and of which there are also unconfirmed reports from Sierra Leone and Guinea-Conakry and another sight-record from Liberia (Serle *et al.* 1977).

Chapin's Spine-tailed Swift *Telacanthura melanopygia*. As recently as 1966 this species was considered endemic to the Lower Guinea forest

(Moreau 1966). In 1972 it was found near Tafo (site 16) (L. Grimes pers. comm.) and in 1975 in Nigeria (Elgood 1975). We have found it widely distributed (sites 1, 2, 3, 4, 6, 7, 10, 11, 14 and 16) and in places common in forest reserves, cocoa farms and mosaic forest. Whether the species has been overlooked or has recently colonized Upper Guinea remains unknown.

NEHRKORN'S YELLOW-BELLIED FLYCATCHER *Hyliota violacea*. Birds with the characteristics of *H. v. nehrkorni* (no white wing-bar) were found at sites 1–9, 12, 16, 17 and 18. Its preferred habitat appears to be cocoa farm and open secondary growth. This little-known race was originally described from Ghana and is now known to occur as far west as Liberia, as well as being much commoner in Ghana than was previously thought.

BLACK-CROWNED FLYCATCHER *Trochocercus nigromitratus*. One bird was seen well at Kakum F.R. (site 7) on 5 January 1977 in a 'bird army'. We found it on 3 occasions at Bia (site 1) (1, 1 and 4 birds) between 5 and 8 April 1977; at Kakum again on 12 June 1977 (1) and at Atewa (site 13) on 19 June 1977 (several). It is known in Upper Guinea from Liberia, but we know of no other records between there and Nigeria.

SHARPE'S APALIS *Apalis sharpei*. Three individuals were seen in the Atewa Range F.R. (site 13) on 1 August 1976, 3–4m up, in a mixed flock. At Bia (site 1) on 7 April 1977 a pair was seen feeding two fledged young at a height of *c* 4·5m and on 8 April a single male was seen feeding at *c* 25m up in a flowering tree in which a single female was also seen on 10 April. On 20 April 1977 at Worobong F.R. (site 15) a pair was watched feeding low down in a mixed flock. At Subri R.F.R. (site 2), on 2 June 1977, 2 females were with a mixed flock, and at Kakum F.R. (site 7) a single female and a pair were foraging alone. The plumage of the young seen on 7 April was quite different from that of the adults and appears not to have been described. They were dark grey above, pale yellow below washed grey on the upper breast, bill dark above and pale below, the gape pink. The young emitted a continuous rapid nasal twitter. This species is known from a few specimens taken between Ghana and Sierra Leone, and has rarely been seen. Close relatives (sometimes regarded as conspecific) occur in Lower Guinea and East Africa (Hall & Moreau 1962).

DUSKY TIT *Parus funereus*. Two adults were seen feeding a fledged youngster at Worobong (site 15) on 20 April 1977, and 1 adult with 1 immature bird begging for food were seen at Atewa (site 13) on 21 May 1977. Bannerman (1953) recorded only 1 specimen from Upper Guinea (from Elmina in south Ghana), but it has since been recorded from Liberia (Hall & Moreau 1970).

CASSIN'S WEAVER *Malimbus cassini*. At least 3 males were seen with Red-headed Weavers *M. rubricollis*, Red-vented Weavers *M. scutatus* and other species at Tafo (site 16) on 25 July 1976. They were feeding on fruit. Two groups of *Malimbus* weavers at Subri R.F.R. (site 2) on 25 December 1976 and 6 February 1977 were probably also Cassin's Weavers. We have seen 7 nests taken at Tafo which are probably of Cassin's Weavers; the length of the entrance tube of 5 of them was 60–88cm (mean 73cm), which contrasts with corresponding measurements of 4 nests of Red-vented Weavers (typical of about 20 which we have seen in Ghana) of 30–46cm (mean 39cm). This

Lower Guinea species was previously not known to occur west of Nigeria, which was included in its range on the basis of sight records (Moreau 1958) by Bannerman and Mackworth-Praed & Grant, but excluded by Elgood (1964, 1975). Moreau (1958) discussed and rejected Chapin's (1954) inference that *M. cassini* and *M. scutatus* are conspecific, a decision given some support by our observations.

RED-FRONTED ANT-PECKER *Parmoptila rubrifrons*. A pair was seen together at Kakum F.R. (site 7) on 5 January 1977 feeding close together at *c* 4m in *Raphia* and behaving much as the Tiny Tit-Weaver *Pholidornis rushiae*. Bannerman described the species as 'extremely rare' when it was known only from Ghana. It has now been found as far west as Liberia and is represented also in Lower Guinea.

We are grateful to the Ghana Department of Game and Wildlife for allowing us to visit Bia National Park and especially to Dr. Claude Martin, the Warden, for arranging accommodation and for his helpful advice. Dr. D. W. Snow drew our attention to his paper on *Agapornis*.

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Willow Warbler *Phylloscopus trochilus* on Frigate Island, Seychelles

by E. H. Penry

Received 22 July 1977

On 12 November 1976 whilst visiting Frigate Island, Seychelles, a *Phylloscopus* warbler was found foraging in typical manner in the canopy of a tree. My immediate impression was that it was a Willow Warbler *Phylloscopus trochilus*, a species with which I am familiar in Zambia and from Britain, but as it was some 30m distant I walked rapidly towards the tree and viewed the bird from about 20m for only about 10 seconds before it was chased out of the tree by a territorial male Madagascar Fody *Foudia madagascariensis*. However before it flew, it called with the characteristic call of a Willow Warbler "see wit", "seewit, seewit". The following features were noted—phylloscopine warbler shape, small thin black bill, upperside plain olive-grey-green, slightly greyer on rump and tail, superciliary pale yellow; underside, very pale yellow wash on throat and upper chest merging to brown wash on sides of chest; remainder of underside white. The leg colour was not noted. There were no other species on Frigate with which the bird could have been confused and no other passerine migrants were seen there that day.

I am not familiar with Chiffchaff *P. collybita* in Africa, but know it in Britain. Its occurrence on Frigate is far less likely than that of the Willow Warbler *cf* Moreau (1972: 306), Benson (1972), Frith (1974: 16–17). Wood Warbler *P. sibilatrix* has once been recorded from Aldabra, on 12 December 1972 (Frith 1974). I had seen this species with Willow Warblers on the edge of Kakamega Forest, Kenya, a week previously. The west-east variation in Willow Warblers is noticeable in Zambia, where probably most forms of the cline are represented (Benson *et al.* 1971: 243). The bird seen on Frigate was much less yellow below than many Willow Warblers seen in Zambia and was not confusable with Wood Warbler.

Penny (1974: 152) gives but two records, both from the Amirantes, and they may indeed be based on one and the same bird, from African Banks, 5° S, 53° E (Church 1971, Benson 1972). Benson (pers. comm.) assures me that Tony Beamish (quoted by Church) and H. H. Beamish (quoted by himself) are one and the same person. Dr. G. E. Watson had drawn Benson's attention (pers. comm. to Benson 13 April 1973) to Church's note, having been with Beamish on the same cruise of the Lindblad Explorer under the direction of Dr. Lyall Watson, and he too identified the bird as a *P. trochilus*, not a "new variety" of the "Brush Warbler" as suggested by Church.

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Field notes on the nests of the Green-fronted Lancebill *Doryfera ludoviciae* and the Blue-fronted Lancebill *Doryfera johannae*

by Barbara K. Snow & M. Gochfeld

Received 25 July 1977

The phylogenetic relationship of the two species of Lancebill *Doryfera* to the hermit group of hummingbirds and to other hummingbirds has been uncertain. Placed by Peters (1945) at the beginning of the Trochilidae, Wetmore (1968) moved them to a position at the end of the hermits near where Ridgway (1911) had originally placed them. Wetmore's move was in accordance with the arrangement of A. Ruschi (1965) based on the form of the nest.

The lancebills most striking morphological character is their long, straight and very fine pointed bill. The plumage is mainly dull for a hummingbird except that both species have a patch of iridescent feathers on the forehead which is found in both sexes in the Green-fronted Lancebill *D. ludoviciae* but only in the male in the sexually dimorphic Blue-fronted Lancebill *D. johannae*. Both species are confined to mountainous areas, *D. johannae* in southeast Venezuela and the adjacent area of Brazil and Guyana and along the eastern base of the eastern Andes of Colombia, Ecuador and N. E. Peru; *D. ludoviciae*, more widely in the upper tropical and sub-tropical zones of the central highlands of Costa Rica, western Panama and the Andes of Venezuela, Colombia, Ecuador, Peru and N.W. Bolivia, occurring in both the western and eastern Andes of Colombia and Ecuador.

Except for an account of a single nest of the Green-fronted Lancebill found by A. Ruschi (1961) there are no published field observations on the nesting or any other activities of the lancebills. The following separate observations on both species have been amalgamated for convenience of future reference.

A nest of *D. ludoviciae* was found on 13 September 1972 by M. Gochfeld and G. S. Keith at Pan de Azucar, 25km west of San Ramon, in the Chanchomayo Valley, Department of Junin, Peru. The nest was in subtropical forest (elevation 1500m), placed on a 4cm wide rock ledge *c* 3m above the stream bed. It was an open cup constructed of tendrils, fine threads of plant material and dried moss measuring 5 × 3cm and 2cm deep. The cup itself was about 2 × 2 × 1cm. The entire structure was overhung by a rock shelf extending more than 15cm beyond the nest. The two white eggs measured 15·7 × 11·1 and 15·6 × 11·1mm. While the nest was examined, the female remained closeby, hovering at eye level, *c* 2–3m from the observers, darting briskly back and forth. No male was observed near the nest, but *c* 100m downstream one was seen perched on a small branch overhanging a one metre high waterfall. It frequently left its perch to hover just over the spray where it captured small insects with rapid darts from side to side. It fed for periods of 15 to 20 seconds, then remained on its perch for to 2 to 3 minutes.

The nest of *D. ludoviciae* found on 26 August 1958 by Ruschi (1961) was at Nanegal, Ecuador. It was built on a branch *c* 2m above the ground, the photograph showing that the branch passed through the nest mass, which was an open cup partly balanced on and partly suspended from the limb. The nest contained two eggs measuring 16 × 11mm.

Observations on *D. johannae* were made by B. K. Snow in July and early August 1976 near the Los Tayos caves at 600m in the forested foothills of the eastern Andes in the Morana–Santiago province of Ecuador (3° 5′ S, 78° 10′ W). This large cave system has three different entrances, two of them vertical shafts 55 and 75m deep. On 15 July a nest containing a typical white elliptical hummingbird egg measuring 15 × 10mm was collected by J. K. Campbell at the bottom of the 75m shaft. The nest (Fig. 1), of completely different construction from all other hummingbird nests, was made entirely of moss bound with a little cobweb, and was attached by a thick tab of cobweb to a slight rocky overhang 1½m up from the bottom of the shaft. The internal cup, which was unlined, had a diameter at the rim of 30mm and a depth of 29mm. The length of the whole structure was 110mm. The egg, which unfortunately got broken later, was unincubated. The nest is deposited in the British Museum.

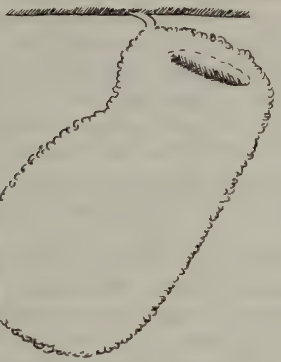

Figure 1. Pendent nest of the Blue-fronted Lancebill *Doryfera johannae.*

On 25 July, 10 days later, it was noticed that a male and female *D. johannae* were very active at the mouth of this same cave shaft. On 6 of the following 8 days, observations totalling 8½ hours were made on these two individuals. Until midday on 1 August both male and female were persistently present at the shaft mouth. The male spent his time either perching on the uppermost twigs of a small dead tree overhanging the mouth of the shaft or flying round the shaft mouth *c* 15m above it. Every few minutes, both while perched and while flying, he uttered a high-pitched chittering call. During the morning observations on 26, 27 and 30 July the female was largely engaged in collecting nest material and diving into the shaft with it. She was twice watched pulling moss off a tree, each time the same one, near the mouth of the shaft, uttering a quiet 'click-clack' between each unsuccessful pull before eventually pulling off a piece and speeding into the cave with it. She was also watched collecting cobweb and taking it into the cave, but mostly she was lost to view while collecting material and only her exits and entrances to the cave were recorded. The most sustained bout of building observed was between 0935 and 1015 hours on 30 July when she made 7 visits into the shaft; the time spent in the cave varied from 1 to 6 minutes, averaging 2·8 minutes.

When hovering up out of the shaft the female often uttered a quiet clicking call, reminiscent of echo-locating clicks; she sometimes rested at the rim of the shaft. She flew down into the shaft at tremendous speed, the only features then visible against the dark mouth of the shaft being the pale tips to the outer tail feathers and the pale bluish-grey bars on the tail coverts. When flying down from the forest 25m above she did not reduce speed in any way as she entered the dark of the shaft. When not engaged in nest building the female often perched in the same dead tree as the male, sometimes only 40cm away from him. From there she frequently flew beside or just in front of him on his flights round the mouth of the shaft. During both activities she also uttered the chittering call. At times the male flew down and met the female as she emerged from the shaft, and twice he displayed his bright yellow gape while hovering at the shaft rim near her.

During a watch from 1000 to 1130 hrs on 1 August the female only entered the shaft once, but was frequently present at the mouth either perched near the male or flying round with him uttering the chittering call. Once when she was flying just in front of him, she landed briefly on the flat wide blade of a *Heliconia* leaf while he hovered just above her. It looked as if copulation was about to occur but she flew on and out of view. Probably copulation did take place that morning as the female was absent that afternoon and the following morning. During the same period the male was only rarely present and was mostly silent.

For a few minutes while the female was collecting nest material on 30 July a third *D. johannae* was in the vicinity of the shaft. The male chased the intruder and once made a steep U-shaped dive at it while it was perched at the rim of the shaft. The sex of this third bird was not determined. The other shaft in the Los Tayos cave system was 65m away and used by members of the expedition entering the caves. An expedition member reported seeing a small dark hummingbird, most probably a lancebill, half way down this shaft. A female *D. johannae* was collected by L. Albuja *c* 400m further up the valley.

The evidence relating to the unknown hummingbird's nest collected on 15 July to the building and courtship activities of the lancebills is strong but remains a supposition. The 10 day interval between the removal of the nest and the female building, presumably to replace it, is similar to the intervals recorded between loss and replacement of eggs in the Rufous-breasted (Hairy) Hermit *Glaucis hirsuta* (Snow & Snow 1973).

The fact that *D. johannae* is confined to mountainous country accords with a need for a specialized nest-site in a rocky habitat. Nests sited only in caves would seem too restrictive a requirement and it is probable that nests are also fixed under deep overhangs in rocky gorges. The only other hummingbird known to suspend its nest in the same way as *D. johannae* is the Andean Hillstar *Oreotrochilus estella*; it nests both in caves and under overhanging rocky ledges (Carpenter 1976).

Throughout observations the male *D. johannae* made frequent fly-catching sallies from his perch at the mouth of the shaft, and the female was once seen feeding in this way. No nectar feeding was observed. The same insect catching technique was used by *D. ludoviciae*. Observations on the insect catching of hermit hummingbirds (Snow & Snow 1972) showed them hovering to glean resting invertebrates, so in this respect the group differs from the lancebills.

Even such brief observations as these suggest that both species of Lancebill have some specialized aspects of their life histories, and possibly both require a rocky habitat for nesting. As one species has a pendent nest and the other a cup-shaped one supported from below, nest-type is probably not a useful criteria for classification.

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New faunistic records from Gabon

by A. Brosset & C. Erard

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In compiling a list of birds from the northeast of Gabon for restricted laboratory use, we have found it desirable to publish details of the occurrence of certain species not previously recorded at all or only on the basis of a few specimens. The following records were obtained during annual or biannual expeditions by A. B. during 1963–77 and by C. E. during 1972–77 to the Laboratoire de Primatologie et d'Ecologie Equatoriale (Centre National de la Recherche Scientifique, Paris) at Makokou (0° 38′ N, 12° 47′ E). Investigations extended as far as Booué (0° 03′ S, 11° 58′ E), Bélinga (1° 10′ N, 13° 10′ E) and Mékambo (1° 03′ N, 13° 50′ E), in the province of Ogooué-Ivindo. 401 species were identified, including 343 in the 2 km^2 which include the clearing around the station of M'Passa, where the laboratory and ecological quadrats bordering primary forest are established. M'Passa is only 10 km southwest of Makokou, and both are in the vicinity of the Ivindo River.

A first list has already been published by Brosset & Dragesco (1967), and information on the distribution of certain species has been provided in other non-faunistic papers (Brosset 1966, 1968, 1969, 1971a, 1971b, 1974, Brosset & Erard 1974, 1976). In the present paper we have only included information which modifies materially the known distribution of the species included, for passerines with particular reference to the maps of Hall & Moreau (1970).

GYPS AFRICANUS White-backed Vulture

A brown-backed immature observed at length at M'Passa, 18 August 1976, circling at low altitudes above the laboratory campus eventually disappearing to the northeast following the Ivindo River after gaining height. No previous record.

SAROTHRURA ELEGANS Buff-spotted Flufftail

Not previously recorded from Gabon (cf. Keith *et al.* 1970: 30). In fact it occurs throughout the northeast of the country, although apparently less abundantly than *S. pulchra*, *rufa* and *boehmi*. Only recognition of its striking song permitted discovery, heard Nov–Apr, especially at night. Normally the "wail" lasts 3–4 seconds; but in January 1977 one bird was heard regularly for hours emitting "wails" lasting 6 seconds followed by silences of 5 seconds.

Inhabits primary forest and old secondary growth, preferring areas of dense undergrowth, fallen logs, heavy marantaceous growth, and also the edges of streamlets, where it is found with *S. pulchra*, which, as well known, is addicted to the vicinity of water or at least muddy terrain and even marshy places. *S. rufa* and *boehmi* occur in clearings, not in forest: *rufa* in stretches of rank herbaceous growth in more or less marshy areas, where *boehmi* also occurs but less commonly. *S. boehmi* prefers and is quite common on the edges of similar herbage on dry ground, where the growth is shorter, with scattered low shrubs such as *Tremum* and *Solanum*. In the same habitat as *boehmi* and also in dense herbaceous growth (*Aphramomum*), on several occasions we have heard songs and calls corresponding to the descriptions of the voice of *lugens* by Keith *et al.* (1970: 49) and to the recordings by Chappuis (1975: 438). However, having neither collected nor even seen a specimen, we hesitate to admit *lugens* to the Gabon list. Incidentally, Keith *et al.* (1970: 47) associate its habitat with that of *rufa* rather than *boehmi*, but their data were scanty.

CERCOCOCCYX MECHOWI Dusky Long-tailed Cuckoo
CERCOCOCCYX OLIVINUS Olive Long-tailed Cuckoo

Not recorded previously from Gabon, although their presence has been suspected by reason of their occurrence in southern Cameroons (Malbrant & Maclatchy 1949: 202, Bouet 1961: 473); but indeed both occur in northeastern Gabon, *olivinus* being very common. Like many forest birds, recognition of their songs (Chappuis 1974: 215–217) is the only means of estimating their abundance. Both inhabit the upper strata of primary forest, to be seen from time to time in foraging parties of mixed insectivorous species. In contrast to *olivinus*, *mechowi* seems to prefer the edges of rivers and streams almost exclusively.

CHRYSOCOCCYX FLAVIGULARIS Yellow-throated Green Cuckoo

Very common in northeastern Gabon, in primary and old secondary forest. Only knowledge of the song (*cf.* Chappuis 1974: 218) permits appreciation of its abundance, for it is rarely seen near the ground, and is virtually a permanent inhabitant of the forest canopy.

LOPHOSTRIX (=JUBULA) LETTII Maned Owl

Known from Rio Muni and southern Cameroons (Malbrant & Maclatchy 1949: 245, Bouet: 617), its occurrence in Gabon could have been suspected. We have seen and collected it on various occasions around Makokou. Without doubt less rare than it seems to be, probably because nothing is known about its voice. It inhabits primary forest. We have found it near rivers or streams, but this does not necessarily indicate that it is attached thereto as are the fishing owls *Scotopelia peli* and *bouvieri*.

It seems useful to stress, in the light of our views of live birds in the field, how deficient is the guidance in most identification manuals. The defect in illustrations is not so much in colour as in shape. In nature, one is reminded of a small eagle owl *Bubo*, coloured in general a warm rufous-maroon with coarse, irregular cream spots on the wing-coverts, the abdomen rufous fawn broadly striated with blackish brown, face rufous broadly encircled with black but with the cheeks underlined with white and the forehead creamy white. The shape is very rounded, as much the body as the head, recalling that of *Scotopelia peli* as figured in plate 35 in Mackworth-Praed & Grant (1970: 485). However, the most striking and determinate character is not the "mane" as many illustrations represent but the very long "ears" standing up at 45 degrees, these tufts being much larger than those of the Long-eared Owl *Asio otus*. The plate in Burton (1973: 114) is good so far as the drawing and general coloration are concerned. However, the facial disc and chest should have been a much darker rufous, and the "ears" as prominent as in the plate of *Bubo sumatrana* (*op. cit.:* 90). The sexual dimorphism in size is very pronounced, the male being a good one-third smaller than the female. Also, the male has the chest more brown-grey, less rufous, and the abdominal striations clearly narrower than in the female.

Reproduction is probably in the short dry season, since on 27 March 1974 we obtained a juvenile (conserved in the Museum in Paris), of which the whole head and upper part of the mantle and chest are still in white down; while on the nape the tips are barred with rufous fawn, blackish brown and white. The general tone of the plumage is also lighter than in the adult, more uniformly cinnamon-rufous, especially on the secondaries, which lack any greyish brown to blackish brown vermiculations.

CALANDRELLA CINEREA Red-capped Lark

On several occasions, in large clearings containing very open, grassy areas (e.g. the Makokou airfield), we observed in the short dry season (Dec–Feb) *Calandrella* larks. One collected was *C. cinerea saturatior*, a form suspected of transequatorial movements (White 1961: 40). Nevertheless, on 12/14 October 1973, in small enclosed savannas at Booué, several individuals were in song. Does the species nest in Gabon?

PSEUDOCHELIDON EURYSTOMINA African River Martin

The population of this species nesting in Zaire spends the off-season on the coast of Gabon, from late May at least until the end of October (Berlioz 1953: 136, and especially Chapin 1953: 732). The sojourn in Gabon is doubtless longer, since the birds do not reappear in numbers on their breeding grounds until the lowering of water-levels in the second half of January. In northeastern Gabon the local people did not know it and we had never seen it until its occurrence was verified in 1977 at Makokou. The first individuals (11 in all) were identified by their call and peculiar shape, circling among some *Hirundo rustica* around the laboratory buildings at M'Passa on 22 January. From 6 to 11 February it was seen daily: up to 50 individuals at M'Passa, several hundreds at the old airfield at Makokou (600 on 6/7, 1,000 on 8, 200 on 9, 300 on 10 and 250 on 11 Feb). On 15 February, only two were noted at M'Passa, on 24th 100 at Makokou, on 28th 30 at M'Passa and double the number next day and over 120 by 5 March. Subsequently, *c.* 50 were still at Makokou on 7, 13 and 14 March; *c.* 60, on 15th and *c.* 200 on 16 March. At M'Passa 6 were seen on 11th, 20 on 14th and 7 on 24 March, on the eve of our departure from Gabon.

Thus this martin was present around Makokou at a time corresponding to the breeding season. Excluding the observations of 24 February, 5 and 16 March, the largest numbers were seen 6–11 February, which suggests a passage movement, with the subsequent persistence of smaller, erratic numbers. We were unable to explore local rivers to locate a possible breeding site on exposed sand-banks, and inquiries of fishermen were negative. The waters of the Ivindo and its tributaries were still high at that time in 1977, levels being not as low as normal for the short dry season, and there were no entirely bare sand-banks around Makokou. However, large areas of seasonally bare sand scarcely exist locally, but there may be more extensive ones upstream, in areas which it was impossible to visit.

At M'Passa, the birds were usually seen between 0700 and 0900 hrs around buildings. Later in the day they hunted above the river and adjacent forest. At Makokou they were grouped together in the early morning, and especially so also in the late afternoon above the airfield, which they left at nightfall, apparently to resort to a roosting site on the river. At the evening gatherings the birds circled high up with much calling, not closely grouped but somewhat scattered. Aerial displays were also evident, individuals in pairs or trios pursuing one another, and hovering against the wind, with intermittent little jingling songs. At low altitudes they would concentrate into a packed group whose evolutions recalled those of the European Starling *Sturnus vulgaris*. Often all would rest on the large earth track of the airfield, or sometimes on the electric wires. At M'Passa, individuals were often noticed on the metallic roofs of houses or the slender branches of bushes. On the river, we also saw them perched on bare branches at the tops of tall trees. On the ground, the species resembles more a small pratincole than a hirundine, while some of its calls are like those of a tern. Displays were also witnessed on the ground, always between two individuals or a pair: body horizontal, tips of the wings drooping, "shoulders" part opened, head horizontal but neck much stretched vertically, they would run parallel to one another, then face each other and perform a kind of pivoted dance, with a lateral displacement away from one another, emitting jingling calls. On other occasions, one individual would approach another, in a vertically stretched posture, and nervously dig the ground (or even attempt it on the iron of a roof!) with the beak. These varied postures surely indicate that the birds were about to breed: suitable banks of sand must have been available not far away.

MACRONYX CROCEUS Yellow-throated Longclaw

This savanna-dweller is more widespread than is suggested by the map in Hall & Moreau (1970: 45). Apart from the specimens from Fernan Vaz and Mouila mentioned by Rand *et al.* (1959: 363), there exist others in the Museum in Paris from Franceville, Port Gentil and Nyanga. We found it well represented in meadows, in enclosed savanna, at Booué.

MOTACILLA ALBA White Wagtail

An example of this Palaearctic migrant was well seen at Makokou, 22 December 1972; apparently the first record from Gabon.

ALETHE POLIOCEPHALA Brown-chested Alethe

With reference to the observations on *A. poliocephala* by Brosset & Erard (1976: 224–230), C. W. Benson has drawn our attention to the evident similarity of a nest (especially its site in a cleft some 4 m above the ground) and eggs of *Alethe choloensis* (Benson & Benson 1947: 284), which is in the same superspecies as *poliocephala* (Hall & Moreau 1970: 120).

Turdus camaronensis Black-eared Ground-thrush

Up to the present only *T. princei* was known from Gabon (Brosset & Erard 1976: 220). However, at M'Passa on 30 June 1976 we caught in a mistnet an immature ground-thrush which caused us to suspect initially, but wrongly (*cf.* Chapin 1953: 576), that *T. camaronensis* was merely the young of *princei*. In January and February 1977 we caught two pairs, certainly adult. One of the birds was unfortunately killed in the nets by a predator on 1 January, and is now in the Museum in Paris. It proved to be a male with testes much developed, evidently ready to breed. It has been compared by C. W. Benson and C. H. Fry with specimens in the British Museum, and agrees with specimens from southern Cameroons of the nominate race.

The difference in size between the two species is clear not only from measurements (*cf.* Prigogine 1965) but also from weights. Two *princei* captured weighed 59 and 61 g, whereas 5 *camaronensis* had a mean of 44 (42–47) g. Ecological separation between the two species is not yet evident: they have both been found in the under storey of primary forest or at the lowest levels. *T. princei* was observed on the ground searching for food, turning over dead leaves, and excavating the earth accumulated on dead stumps, branches and decomposed trunks in dense areas of fallen wood. *T. camaronensis* was likewise caught in such dense areas or their edges. Perhaps there is no difference in habitat, perhaps only in diet, in the kinds and sizes of food taken. It is remarkable that between 15 December 1976 and 25 March 1977 no nest of *camaronensis* was found, though 4 adults were captured, including (as above) one in breeding condition. On the other hand, three clutches of eggs of *princei* (c/1, c/2, c/3) were discovered, but none was caught. It is also surprising that no song was ever heard, but merely some contact calls between a pair of *princei* (a "tsssrrr" drawn out at the end, rolling, very reminiscent of the calls of *Fraseria cinerascens* or *Muscicapa caerulescens*).

Picathartes oreas Red-headed Rockfowl

The map in Hall & Moreau (1970: 149) does not show any Gabonese locality. This cave-lover nests at Bélinga from March to May (Brosset 1965).

Acrocephalus baeticatus African Reed Warbler

A male collected on 18 April 1965 at Makokou, in a dense growth of sugar-cane near habitations, is the first record. The specimen (now in the Museum in Paris) has been compared by C. W. Benson with the material in the British Museum of *A. b. cinnamomeus* (6 specimens from Darfur and 9 from Zambia and Malawi), *A. b. nyong* (only known by the type, from Cameroons) and the type of *A. b. minor*. It is referable to *cinnamomeus*, which is confirmed by C. H. Fry, who examined it independently.

Sylvia communis Whitethroat

During January 1973 one was observed daily in the ornamental bushes of a garden at M'Passa. It occupied a very small territory (*c.* 40 × 40 m), and fed under the verandah of a house on insects attracted to a lamp left alight through the night. This warbler, the only individual we have ever seen in Gabon, is unusual in a forested region (*cf.* Moreau 1972: 109).

Apalis nigriceps Black-capped Apalis

Not previously recorded. C. Chappuis believes he heard it in the Makokou area, but without proof. In March 1977 we saw it at Bélinga, but could not obtain a specimen. It inhabits the top of the canopy of primary forest, where it is very difficult to detect except on the edges of clearings. It was impossible to estimate its abundance since at the time it was not singing.

APALIS GOSLINGI Gosling's Apalis

Fairly common in primary forest on the edges of large water-courses and on islets in the Ivindo River, in pairs, exploring the middle and upper strata of the vegetation. Hall & Moreau (1970: 186) and White (1962: 705) regard it as a race of *A. sharpii*, but the voice of *goslingi* is quite different from that of *sharpii*, as shown by a comparison of tape recordings made in Gabon and the Ivory Coast. On the other hand, the voices of *sharpii* and *rufogularis* are very similar (C. Chappuis, pers. comm.).

MUSCICAPIDAE Flycatchers

An etho-ecological study and taxonomic revision of all 30 species of flycatchers occurring in northeastern Gabon is in preparation (C. E.). In this note it is only necessary to bear in mind the salient faunistic data in Hall & Moreau. *Muscicapa infuscata* (= *Artomyias fuliginosa*), *M. epulata* and *M.* (= *Pedilorhynchus*) *comitata* are widespread in clearings and plantations as well as in secondary forest. *M. olivascens* is strictly confined to the canopy of primary forest, while *M. cassini* frequents only the banks of rivers and lightly inundated forest. *Myioparus plumbeus* and *griseigularis* replace one another: the former in secondary growth, the latter in primary forest. The two *Fraseria* spp. are equally plentiful: *ocreata* as much in secondary as in the canopy of primary forest, *cinerascens* in inundated forest and on the edges of watercourses. *Megabyas flammulatus* occurs, uncommonly, in secondary and in the top of the canopy of primary forest. *Hyliota violacea* (if not a sylviid, thus *cf.* Traylor 1970: 396) has been noted in primary forest but seems rare. *Batis minima* inhabits the tops of tall trees in secondary growth (Erard 1975: 239). The genus *Platysteira* (including *Diaphorophyia*) is represented by 5 species, relatively common: *cyanea* in stabilised ecotones near villages, *concreta* in the undergrowth of primary forest, *blissetti chalybea* in the lower strata of abandoned plantations and secondary forest, *castanea* in the mid-strata of primary and old secondary forest, *tonsa* in the high canopy of primary forest. *Erythrocercus mccallii* is widespread in the top of primary forest, also near small streams in secondary growth. *Trochocercus nigromitratus* inhabits the undergrowth of primary forest. A male of *Terpsiphone viridis plumbeiceps*, now in the Museum in Paris, was collected in the long dry season on 14 June 1963, in a party of insectivores in primary forest: evidently an occasional visitor. Phenotypes of *T. rufocinerea* occur around Makokou, their behaviour and ecology indicating them to be merely morphs of *T. viridis*, a species inhabiting secondary growth. In primary forest, abutting into old secondary, *T. batesi* occurs, apparently a good species. *T. rufiventer tricolor* is occasional in primary growth.

PARUS FUNEREUS Dusky Tit

Described from Gabon, without a precise locality (J. & E. Verreaux 1855), and never recorded since until we saw a pair on 24 June 1976 near Mékambo in an area of old abandoned cultivation, foraging in the top of the vegetation. In March 1977 we found it very widespread at Bélinga, in the top of the canopy of primary forest, in groups of 8–15, each group moving through areas of 12–15 ha. Their calls are far-carrying, reminiscent of those of *Dicrurus* or the whistling notes of *Fraseria ocreata.*

Anthoscopus flavifrons Yellow-fronted Penduline Tit

Commoner than might be supposed from rare sightings. Our Gabonese assistants brought us empty nests from time to time. Inhabits the top of the canopy of primary forest, where it lives in family groups circulating through considerable areas. Difficult to detect from the ground except by a trained ear.

Pholidornis rushiae Tit-Hylia

Found only once, on 14 January 1975, near the laboratory at M'Passa: 4 individuals were in a mixed species party of insectivores in shrubs on the edge of a clearing, but quickly gained height into the tops of tall trees, to disappear into bordering primary forest. Their appearance and foraging method (they moved rapidly through the foliage, inspecting the petioles and stems of leaves) were reminiscent of warblers or sunbirds. Here is another example of a small species inhabiting the upper strata of the forest, passing as rarer than it really is.

Ploceus superciliosus Compact Weaver

Only previously recorded from Gabon at Mouila (Rand *et al.* 1959: 321), a male, now in the Museum in Paris, was collected on 5 March 1963 at Makokou, in plantations bordering the Ivindo River.

Ploceus preussi Golden-backed Weaver

Ploceus dorsomaculatus Yellow-capped Weaver

P. preussi was collected by Rougeot (Berlioz & Rougeot 1951: 75) at Oyem, not at Libreville as Malbrant & Maclatchy (1949: 401) indicate, and copied by Hall & Moreau (1970: 292). It exists in small numbers around Makokou and Mékambo. *P. dorsomaculatus* had not previously been recorded from Gabon, although its occurrence was suspected, until we found it at Mékambo. The two species inhabit secondary growth, notably old plantations. They live in pairs or family groups, and are found on occasion in mixed species parties of insectivores. A very clear ecological segregation was established at Mékambo: *preussi* exploits the trunks and large branches of trees, systematically excavating the bark in the manner of a nuthatch or woodpecker, whereas *dorsomaculatus* exploits the foliage.

Ploceus tricolor Yellow-mantled Weaver

Only previously recorded by Rougeot, who obtained a specimen near Libreville (in the Museum in Paris), this weaver is actually widespread in northeastern Gabon in secondary forest, nowhere abundant, living in pairs, often in mixed species parties of insectivores. It favours the highest strata of the vegetation, where it feeds and nests: facts which make it appear even less common than it is in reality.

grafisia torquata White-collared Starling

Not previously recorded from Gabon. A pair was observed on 4 March 1975 at 20 km from Makokou towards Mékambo, and 3 individuals (of which a male was well seen) on 9 March at M'Passa. All were in clearings, and were evidently vagrants.

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Cervical Neossoptiles in a Neotropical Passerine

by Charles T. Collins and Kristen E. Bender

Received 11 August 1977

The natal pterylosis of passerine birds has been shown at times to provide limited information on taxonomic relationships (Markus 1972, Collins & Kemp 1976 and references therein). The tracts bearing neossoptiles have been outlined by Wetherbee (1957) and Markus (1970). In the cervical region they recorded neossoptiles only from the ventral surface and then only in a few species and from rare individuals of other species. In a study of the natal pterylosis of Neotropical passerines we have found the presence of downs in the dorsal cervical region of the Red-capped Cardinal *Paroaria gularis*, which constitutes a new neossoptile pteryla for passerines. (Dorsal cervical downs have also been recently found for one altricial non-passerine species, the Rufous-breasted Hermit Hummingbird *Glaucis hirsuta* (Collins in press).

The two specimens used in this study were collected by C.T.C. on 24 July 1976 from a nest found *c* 50km south of Calaboso, Est. Guarico, Venezuela. One specimen was newly hatched and the second was removed from an egg which we would have expected to hatch within 24 hours. The distribution of the neossoptiles and the number occurring in each tract are presented in Table 1. The total number of neossoptiles for each bird was quite similar and there was little variation within the tracts with the exception of some of the tracts of the alar region. In specimen 1 the dorsal cervical downs were

TABLE 1.

Natal downs of *Paroaria gularis*

Tracts	*Number of Neossoptiles*	
	Specimen 1(a)	*Specimen 2(b)*
Coronal	13/12(*c*)	12/14
Occipital	4/4	4/4
Cervical (dorsal)	3/3	4/3
Mid-dorsal	8/8	6/5
Pelvic (lateral)	3/4	8/7
Pelvic (medial) (*d*)	12	14
Scapular	8/10	10/10
Femoral	10/10	12/13
Abdominal	14/13	11/13
Crural	11/12	11/10
Upper rectrix covert	6/6	5/5
Primary	5/6	0/0
Secondary	2/2	3/2
Greater secondary covert	10/10	9/10
Middle secondary covert	8/8	7/7
Lesser secondary covert	2/3	0/0
Carpel remex covert	1/1	1/1
Patagial covert	1/0	0/0
Total number of downs	233	221

Notes: a. older specimen: collected as newly hatched chick
b. younger specimen: collected from unhatched egg
c. number of neossoptiles in tract: right/left
d. single tract on midline (all other tracts paired).

present in two closely paired antero-postero rows of three straddling the midline; in specimen 2 there were 4 on the left side and three on the right (Fig. 1).

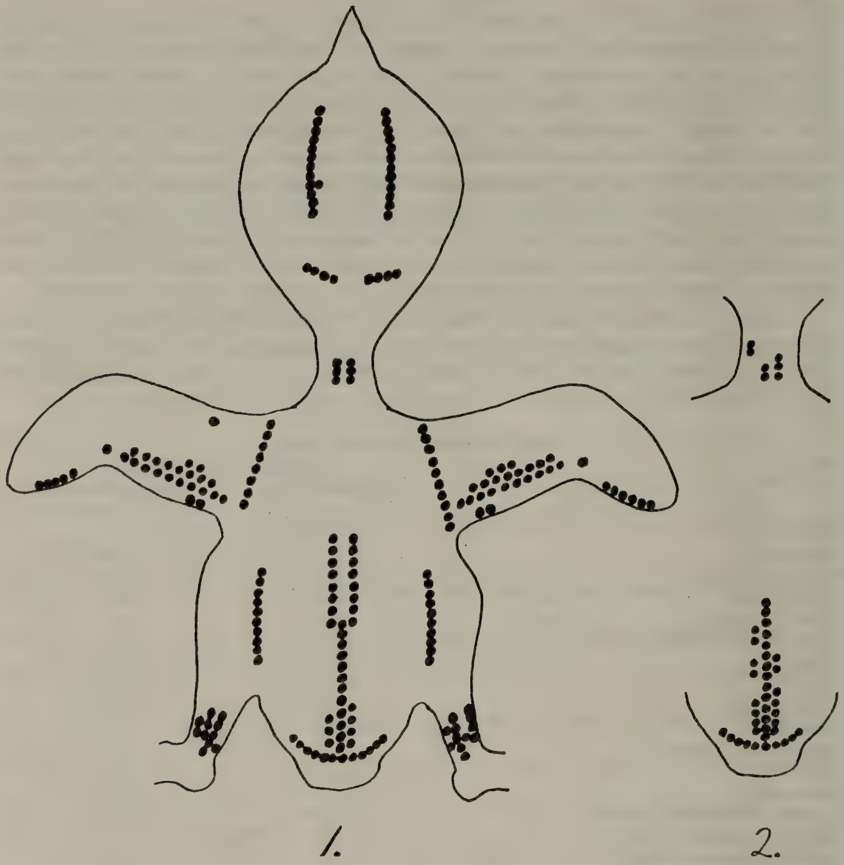

Figure 1. Distribution of neossoptiles in *Paroaria gularis* specimens 1 and 2 (see Table 1): each dot represents a single feather.

In ossine passerines the lateral pelvic downs, if present, are usually confined to rows of only 1–3 downs flanking the posterior portion of a single medial pelvic row. The downs on the pelvic region of *Paroaria* were somewhat unusually prominent. This was particularly true in the unhatched specimen where the downs, in groups of 2, 2, and 4, formed a discontinuous row on the left side, while groups of 2 and 5 formed the row on the right side; in the hatched specimen the downs were in continuous groups of 3 and 4 downs on the two sides. The lateral pelvic rows of both specimens were exactly aligned with the anterior paired rows of neossoptiles in the mid-dorsal region. In fact, the separation of these into pelvic and mid-dorsal regions of the spinal tract was nearly arbitrary in the younger specimen.

Well developed rows of lateral pelvic downs have recently also been noted in the House Finch *Carpodacus mexicanus* (Collins & Bender in press). The pattern of distribution of pelvic region neossoptiles deserves further attention and may prove to be of some assistance in determining taxonomic relationships in these perplexing groups of passerines.

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Charadrius semipalmatus in the Azores

by Robert Hudson

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In analyses of Canadian shorebird ringing studies, McNeil & Burton (1975, *Emu* 74, suppl.: 316 and 1977, *Wilson Bull.* 89: 167–171) made incidental references to a Semipalmated Plover *Charadrius semipalmatus* recovered in the Azores. Since this is the only record of this species (or semispecies) for the western Palaearctic (a 1916 British record stands rejected as one of the 'Hastings Rarities') it merits proper documentation.

At the end of September 1972 the British Trust for Ornithology received notification from Senhor Dalberto T. Pombo, an Azores resident, that a *Charadrius* sp. carrying a ring (Washington 104–184883) had been captured on the 25 September 1972 on the island of Santa Maria. These details were forwarded to the U.S. Fish and Wildlife Service, who advised that it was a *C. semipalmatus*, ringed as a two-year old bird four weeks previously, on 24 July 1972, on Grindstone, one of the Magdalen Islands in the Gulf of St. Lawrence (Quebec Province, Canada).

The Semipalmated Plover breeds in Alaska and northern Canada, and winters coastally from the U.S.A. to Patagonia. It is the New World counterpart of the Eurasian Ringed Plover *Charadrius hiaticula*, which also breeds, marginally, in arctic Canada (Ellesmere, Bylot and Baffin Islands), though wintering exclusively in the Old World.

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IN BRIEF

Telacanthura ussheri benguellensis in Zambia

Benson & Winterbottom (*Bull. Brit. Orn. Cl.* 97, 1977: 46-48) made no reference to any record of this spinetail in *Bull. Zambian Orn. Soc.* 1(1)—8(2), 1969-76. A perusal of the plethora of data in that journal from Zambia as a whole reveals observations of it only from the Middle Zambezi Valley and the ecologically similar lower Luangwa Valley (Aspinwall, 4(1), 1972: 7; 7(2), 1975: 49). This accords with Benson & Winterbottom's suggestion that in the south of its range *T. u. benguellensis* may be confined to dry deciduous woodland where baobabs occur.

18 July 1977 C. W. Benson

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Nesting of the Jabiru Stork *Ephippiorhynchus senegalensis* in West Africa

On 4 December 1975, whilst flying along the Comoe River in the Comoe National Park, northern Ivory Coast in a Bell 206B "Jet Ranger" helicopter, piloted by Captain A. Arney, I noticed an adult Jabiru Stork *Ephippiorhynchus senegalensis* standing on a nest in the canopy of a large white silk cotton tree *Ceiba pentandra*, growing in the riverine forest at 08° 56′ N, 03° 54′ W. Without going too close, we circled the nest tree and were able to see that the nest contained three well grown chicks, still apparently in white down. Their beaks appeared to be black.

Although Jabiru's are widely recorded in West Africa, they seem to be uncommon. Nesting was not reported by Bannerman (1953) and Mackworth-Praed & Grant (1970) report nest building in January in Senegal as the only evidence of breeding in West Africa. Thus, this Ivory Coast observation appears to be the first definite breeding record for West Africa. Thanks are due to Dr. L. G. Grimes for checking the literature.

19 July 1977 J. Frank Walsh

References:

Bannerman, D. A., 1953. The Birds of West Equatorial Africa, Vol. I, Edinburgh: Oliver and Boyd.

Mackworth-Praed, C. W. & Grant, C. H. B., 1970. Birds of West Central and Western Africa, Vol. I. London: Longmans.

Address: B.P. 549, Ouagadougou, Republic of Upper Volta, West Africa

BOOKS RECEIVED

SIMON, HILDA. 1977. *The Courtship of Birds.* Pp. 1–190. Profusely illustrated by the author in colour. Cassell: London. £5.50.

The author has illustrated her own choice of birds in courtship display, from the simple songster to the exotic paradise birds, acrobatic manakins and hard-labouring Adelie Penguins. There is a good deal of artistic licence in the pleasant pastel shade painted drawings in both their content and colour. The text includes little that is original.

MARGOSCHIS, R. 1977. *Recording Natural History Sounds.* Pp. 1–109. 34 photographs, diagrams. Print and Press Services Ltd: Barnet, London. £4.00 hardback; £2.75 paperback.

Detailed and experienced advice and explanation for the beginner in the field of outdoor recording, with a commendable absence of jargon.

GLASIER, P. 1977. *As the Falcon her Bells.* Pp. 1–223. Many photographs. White Lion Publishers Ltd: London. £5.95.

Originally published in 1963, now re-printed with a new preface by the author, in which he emphasises that the book was never intended to be technical and is indeed a light autobiographical account of episodes in the author's considerable experiences in falconry, including those in the company of his well-known uncle, the late Captain Charles Knight.

LANCASTER, D. A. 1976. *The Living Bird.* Fifteenth Annual (1976) of the Cornell Laboratory of Ornithology, Ithaca, New York. Pp. 1–254. No price. (Dated 1976, publication date 15 June 1977.)

A most sumptuous production, with many beautiful paintings in colour and black and white by leading American artists and two British, many photographs and diagrams, to illustrate the nine well presented papers of more than average interest and scientific content.

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